

# H3C S5100-SI/EI Series Ethernet Switches Installation Manual

Hangzhou H3C Technologies Co., Ltd. http://www.h3c.com

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# **About This Manual**

#### **Related Documentation**

In addition to this manual, each H3C S5100-SI/EI Series Ethernet Switches documentation set includes the following:

Manual	Description
H3C S5100-SI/EI Series Ethernet Switches Operation Manual	It is used for assisting the users in data configurations and typical applications.
H3C S5100-SI/EI Series Ethernet Switches Command Manual	It is used for assisting the users in using various commands.

## Organization

H3C S5100-SI/El Series Ethernet Switches Installation Manual is organized as follows:

Chapter	Contents
1 Product Overview	Introduces the characteristics and technical specifications of S5100-SI/EI Series Ethernet Switches.
2 Preparing for Installation	Introduces the installation preparation and precaution of S5100-SI/EI Series Ethernet Switches.
3 Installing the Switch	Introduces the procedures to install an S5100-SI/EI Series Ethernet Switch, including the setup of the mainframe, cards and cables.
4 Powering on the Switch for the First Time	Introduces the booting process of an S5100-SI/EI Series Ethernet Switch, including the power-on booting of the switch and the system initialization.
5 Boot ROM and Host Software Loading	Introduces how to load BootROM and host software for an S5100-SI/EI Series Ethernet Switch.
6 Maintenance and Troubleshooting	Introduces the problems that might occur during the installation and the booting of an S5100-SI/EI Series Ethernet Switch and the related solution.
7 Appendix A	Introduces lightning protection of S5100-SI/EI Series Ethernet Switches.

#### **Conventions**

The manual uses the following conventions:

#### I. GUI conventions

Convention	Description
<>	Button names are inside angle brackets. For example, click <ok>.</ok>
[]	Window names, menu items, data table and field names are inside square brackets. For example, pop up the [New User] window.
/	Multi-level menus are separated by forward slashes. For example, [File/Create/Folder].

### II. Symbols

Convention	Description	
<b>A</b> Warning	Means reader be extremely careful. Improper operation may cause bodily injury.	
A Caution	Means reader be careful. Improper operation may cause data loss or damage to equipment.	
□ Note	Means a complementary description.	

#### **Environmental Protection**

This product has been designed to comply with the requirements on environmental protection. For the proper storage, use and disposal of this product, national laws and regulations must be observed.

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# **Chapter 1 Product Overview**

#### 1.1 Preface

H3C S5100 Series Ethernet Switches (hereinafter referred to as the H3C S5100 series) are Gigabit Ethernet switching products developed by H3C Technology Co., Ltd. The H3C S5100 series provide a variety of service features. The H3C S5100 series are designed as convergence and access devices for intranets and metropolitan area networks (MANs), and can also be used for connecting data center server clusters.

The H3C S5100 series come in two series: S5100-SI and S5100-EI, which are available in the following models:

Table 1-1 H3C S5100-SI/EI series

Series	Model	10/100/100 0Base-T autosensin g Ethernet port	1000Base-X SFP port	Console port
	S5100-8P-SI	8	2	
S5100-SI	S5100-16P-SI	16		
33100-31	S5100-24P-SI	24	4	
	S5100-48P-SI	48		
	S5100-8P-EI	8	2	
	S5100-16P-EI	16		
	S5100-24P-EI	24		1
	S5100-48P-EI	48	4	1
S5100-EI	S5100-26C-EI	24		
S5100-E1	S5100-50C-EI	48		
	S5100-8P-PWR-EI	8	2	
	S5100-16P-PWR-EI	16		
	S5100-26C-PWR-EI	24	4	
	S5100-50C-PWR-EI	48		

An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at

a time. Table 1-2 shows the mapping relations between the ports forming the Combo port.

**Table 1-2** Mapping relations between the ports forming the Combo port

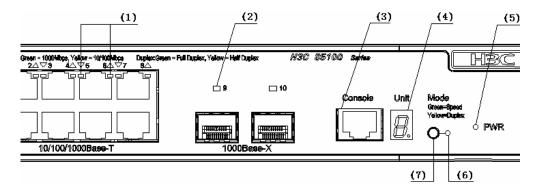
Model	1000Base-X SFP port	10/100/1000Base-T autosensing Ethernet port
	17	14
S5100-16P-SI   S5100-16P-EI	18	16
S5100-16P-EI S5100-16P-PWR-EI	19	13
	20	15
S5100-24P-SI S5100-24P-EI S5100-26C-EI S5100-26C-PWR-EI	25	22
	26	24
	27	21
	28	23
S5100-48P-SI	49	46
S5100-48P-EI	50	48
S5100-50C-EI	51	45
S5100-50C-PWR-EI	52	47

# 1.2 S5100-SI Series Ethernet Switches

#### 1.2.1 S5100-8P-SI Ethernet Switch

#### I. Front Panel

An S5100-8P-SI Ethernet switch provides 8 x 10/100/1000Base-T autosensing Ethernet ports, two 1000Base-X SFP ports, and one console port on the front panel. Figure 1-1 shows the front panel of an S5100-8P-SI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (4): 7-segment digitron display
- (6): Ethernet port mode switching LED
- (3): Console port
- (5): Power LED
- (7): Port status LED mode switch

Figure 1-1 Front panel of an S5100-8P-SI Ethernet switch

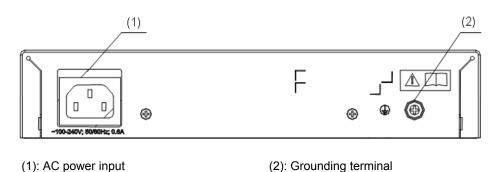
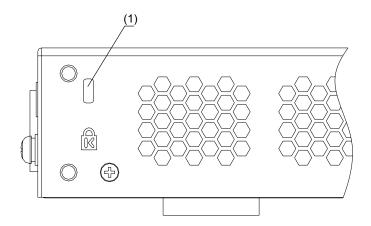


Figure 1-2 Rear panel of an S5100-8P-SI Ethernet switch

#### III. Side panel

An S5100-8P-SI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.



(1): Lock hole for theft prevention

Figure 1-3 Lock hole for theft prevention on the back of the left side panel

#### A Note:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

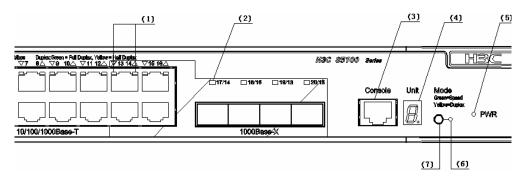
#### V. Cooling system

An S5100-8P-SI Ethernet switch provides one fan for heat dissipation.

#### 1.2.2 S5100-16P-SI Ethernet Switch

#### I. Front panel

An S5100-16P-SI Ethernet switch provides 16 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-4 shows the front panel of an S5100-16P-SI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- LED (3): Console port
- (4): 7-segment digitron display(6): Ethernet port mode switching LED
- (5): Power LED(7): Port status LED mode switch

Figure 1-4 Front panel of an S5100-16P-SI Ethernet switch

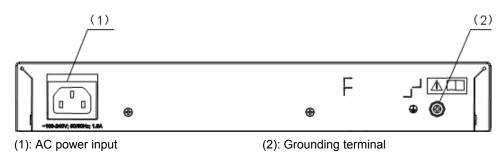


Figure 1-5 Rear panel of an S5100-16P-SI Ethernet switch

#### III. Side panel

An S5100-16P-SI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.

#### A Note:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

#### AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

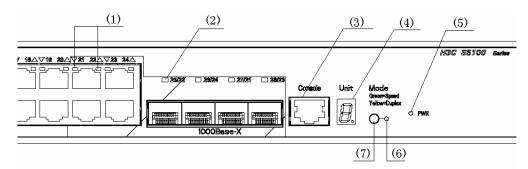
#### V. Cooling system

An S5100-16P-SI Ethernet switch provides one fan for heat dissipation.

#### 1.2.3 S5100-24P-SI Ethernet Switch

#### I. Front panel

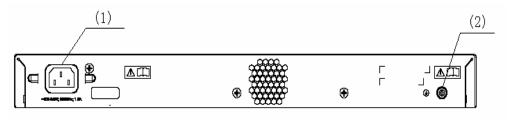
An S5100-24P-SI Ethernet switch provides 24 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-6 shows the front panel of an S5100-24P-SI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (3): Console port (5): Power LED
- (4): 7-segment digitron display(6): Ethernet port mode switching LED
- (7): Port status LED mode switch

Figure 1-6 Front panel of an S5100-24P-SI Ethernet switch

#### II. Rear panel



(1): AC power input

(2): Grounding terminal

Figure 1-7 Rear panel of an S5100-24P-SI Ethernet switch

#### III. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

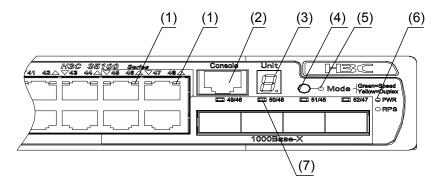
#### IV. Cooling system

An S5100-24P-SI Ethernet switch provides one fan for heat dissipation.

#### 1.2.4 S5100-48P-SI Ethernet Switch

#### I. Front panel

An S5100-48P-SI Ethernet switch provides 48 x 10/100/1000Base-TX autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-8 shows the front panel of an S5100-48P-SI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): Console port

- (3): 7-segment digitron display
- (4): Port status LED mode switch
- (5): Ethernet port mode switching LED

(6): Power LED

(7): 1000Base-X SFP port status LED

Figure 1-8 Front panel of an S5100-48P-SI Ethernet switch

#### II. Rear panel

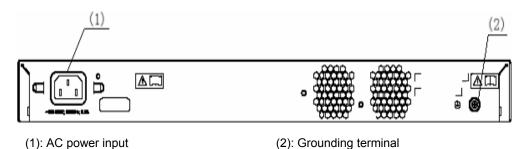


Figure 1-9 Rear panel of an S5100-48P-SI Ethernet switch

#### III. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

#### IV. Cooling system

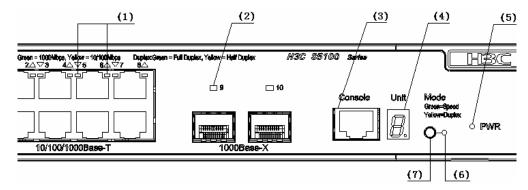
An S5100-48P-SI Ethernet switch provides two fans for heat dissipation.

#### 1.3 S5100-El Series Ethernet Switches

#### 1.3.1 S5100-8P-EI Ethernet Switch

#### I. Front panel

An S5100-8P-EI Ethernet switch provides 8  $\times$  10/100/1000Base-T autosensing Ethernet ports, two 1000Base-X SFP ports, and one console port on the front panel. Figure 1-10 shows the front panel of an S5100-8P-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED

(6): Ethernet port mode switching LED

- (3): Console port (5): Power LED
- (4): 7-segment digitron display
- (7): Port status LED mode switch

Figure 1-10 Appearance of an S5100-8P-EI Ethernet switch

#### II. Rear panel



(1): AC power input

(2): Grounding terminal

Figure 1-11 Rear panel of an S5100-8P-EI Ethernet switch

#### III. Side panel

An S5100-8P-EI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.

#### □ Note:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz

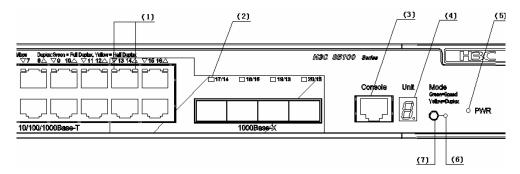
#### V. Cooling system

An S5100-8P-EI Ethernet switch provides one fan for heat dissipation.

#### 1.3.2 S5100-16P-EI Ethernet Switch

#### I. Front panel

An S5100-16P-EI Ethernet switch provides 16 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-12 shows the front panel of an S5100-16P-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (5): Power LED

(3): Console port

- (4): 7-segment digitron display(6): Ethernet port mode switching LED
- (7): Port status LED mode switch

Figure 1-12 Front panel of an S5100-16P-EI Ethernet switch

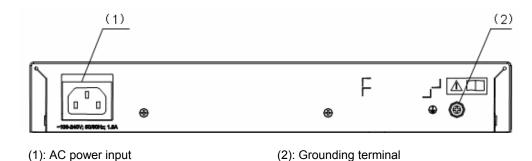


Figure 1-13 Rear panel of an S5100-16P-EI Ethernet switch

#### III. Side panel

An S5100-16P-EI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.

#### □ Note:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

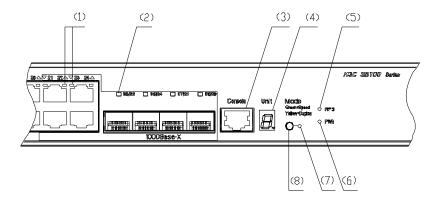
#### V. Cooling system

An S5100-16P-EI Ethernet switch provides one fan for heat dissipation.

#### 1.3.3 S5100-24P-El Ethernet Switch

#### I. Front panel

An S5100-24P-EI Ethernet switch provides 24 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-12 shows the front panel of an S5100-24P-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (3): Console port
- (5): DC power LED(7): Ethernet port mode switching LED
- (4): 7-segment digitron display
- (6): Power LED
- (8): Port status LED mode switch

Figure 1-14 Front panel of an S5100-24P-EI Ethernet switch

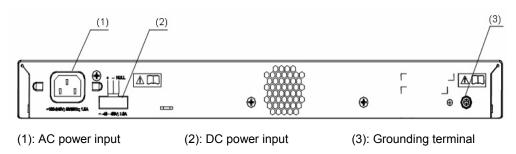


Figure 1-15 Rear panel of an S5100-24P-EI Ethernet switch

#### III. Power supply system

An S5100-24P-EI switch provides AC power input and RPS DC input. The AC and DC power inputs can be used at the same time, acting as backup for each other. Alternatively, you can use either the AC power input alone or the DC power input alone. Make sure you use an RPS module recommended by H3C as the DC power input.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

DC input

Rated voltage range: -48 VDC to -60 VDC Max voltage range: -36 VDC to -72 VDC

#### Note:

For the description of RPS and the auxiliary cables, see *RPS500-A3 User Manual* and *RPS1000-A3 User Manual*.

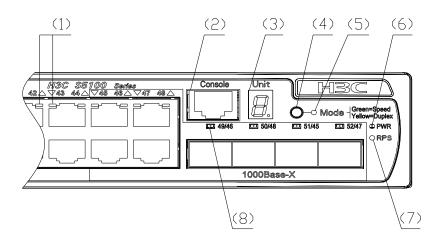
#### IV. Cooling system

An S5100-24P-EI Ethernet switch provides one fan for heat dissipation.

#### 1.3.4 S5100-48P-El Ethernet Switch

#### I. Front panel

An S5100-48P-EI Ethernet switch provides 48 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-16 shows the front panel of an S5100-48P-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): Console port
- (3): 7-segment digitron display
- (5): Ethernet port mode switching LED
- (7): DC power LED

- (4): Port status LED mode switch
- (6): Power LED
- (8): 1000Base-X SFP port status LED

Figure 1-16 Front panel of an S5100-48P-EI Ethernet switch

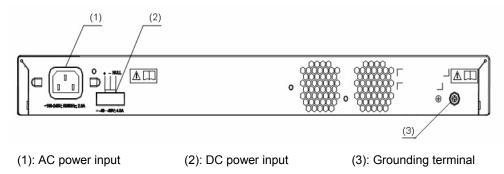


Figure 1-17 Rear panel of an S5100-48P-EI Ethernet switch

#### III. Power supply system

An S5100-48P-EI switch provides AC power input and RPS DC input. The AC and DC power inputs can be used at the same time, acting as backup for each other. Alternatively, you can use either the AC power input alone or the DC power input alone. Make sure you use an RPS module recommended by H3C as the DC power input.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz

Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

DC input

Rated voltage range: -48 VDC to -60 VDC

Max voltage range: -36 VDC to -72 VDC

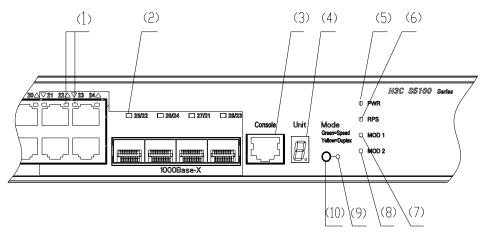
#### IV. Cooling system

An S5100-48P-EI Ethernet switch provides two fans for heat dissipation.

#### 1.3.5 S5100-26C-EI Ethernet Switch

#### I. Front panel

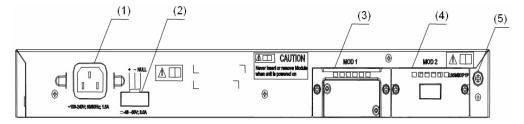
An S5100-26C-EI Ethernet switch provides 24 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-18 shows the front panel of an S5100-26C-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (3): Console port
- (5): Power LED
- (7): 10 G interface slot 1 LED
- (9): Ethernet port mode switching LED
- (4): 7-segment digitron display
- (6): DC power LED
- (8): 10G interface slot 2 LED
- (10): Port status LED mode switch

Figure 1-18 Front panel of an S5100-26C-EI Ethernet switch

An S5100-26C-EI Ethernet switch provides AC input, DC input, and two 10 Gbps interface slots on the rear panel, as shown in Figure 1-19.



- (1): AC power input
- (3): 10 G interface slot 1
- (5): Grounding terminal

- (2): DC power input
- (4): 10 G interface slot 2

Figure 1-19 Rear panel of an S5100-26C-EI Ethernet switch

#### A Note:

Both 10 G interface slot 1 and 10 G interface slot 2 can be used for XFP interface cards, stack cards, and XENPAK optical modules.

#### III. Power supply system

An S5100-26C-EI switch provides AC power input and RPS DC input. The AC/DC power inputs can be used at the same time, acting as backup for each other.

Alternatively, you can use either the AC power input alone or the DC power input alone. Make sure you use an RPS module recommended by H3C as the DC power input.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

DC input

Rated voltage range: -48 VDC to -60 VDC Max voltage range: -36 VDC to -72 VDC

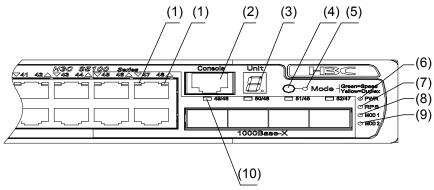
#### IV. Cooling system

An S5100-26C-EI Ethernet switch provides two fans for heat dissipation.

#### 1.3.6 S5100-50C-EI Ethernet Switch

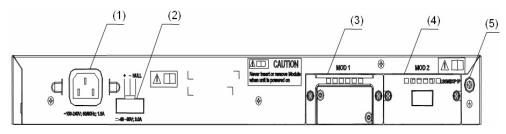
#### I. Front panel

An S5100-50C-EI Ethernet switch provides 48 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-20 shows the front panel of an S5100-50C-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): Console port
- (3): 7-segment digitron display
- (5): Ethernet port mode switching LED
- (7): DC power LED
- (9): 10G interface slot 2 LED
- (4): Port status LED mode switch
- (6): Power LED
- (8): 10 G interface slot 1 LED
- (10) 1000Base-X SFP port status LED

Figure 1-20 Front panel of an S5100-50C-EI Ethernet switch



- (1): AC power input
- (3): 10 G interface slot 1
- (5): Grounding terminal

- (2): DC power input
- (4): 10 G interface slot 2

Figure 1-21 Rear panel of an S5100-50C-EI Ethernet switch

#### III. Power supply system

An S5100-50C-EI switch provides AC power input and RPS DC input. The AC/DC power inputs can be used at the same time, acting as backup for each other. Alternatively, you can use either the AC power input alone or the DC power input alone. Make sure you use an RPS module recommended by H3C as the DC power input.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

DC input

Rated voltage range: -48 VDC to -60 VDC Max voltage range: -36 VDC to -72 VDC

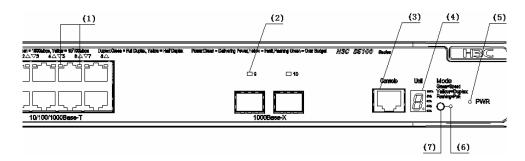
#### IV. Cooling system

An S5100-50C-EI Ethernet switch provides three fans for heat dissipation.

#### 1.3.7 S5100-8P-PWR-EI Ethernet Switch

#### I. Front panel

An S5100-8P-PWR-EI Ethernet switch provides 8 x 10/100/1000Base-T autosensing Ethernet ports, two 1000Base-X SFP ports, and one console port on the front panel. Figure 1-22 shows the front panel of an S5100-8P-PWR-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (3): Console port
- (4): 7-segment digitron display
- (5): Power LED
- (6): Ethernet port mode switching LED
- (7): Port status LED mode switch

Figure 1-22 Front panel of an S5100-8P-PWR-EI Ethernet switch

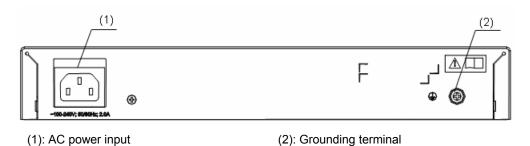


Figure 1-23 Rear panel of an S5100-8P-PWR-EI Ethernet switch

#### III. Side panel

An S5100-8P-PWR-EI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.

#### A Note:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

#### AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

#### V. PoE

S5100-8P-PWR-EI Ethernet switches support Power Over Ethernet (PoE). They can be connected to remote powered devices (PDs), such as IP phones, WLAN APs, Security and Bluetooth APs, over twisted pair cables to remotely supply -48 VDC power to the connected PDs.

- When serving as a power sourcing equipment (PSE), an S5100-8P-PWR-EI Ethernet switch supports IEEE802.3af standards and can also supply power to some of the PDs incompatible with 802.3af standards.
- An S5100-8P-PWR-EI Ethernet switch can provide power supplies through its eight fixed Ethernet electrical ports over a distance of up to 100 m (328 feet).
- Each Ethernet port on an S5100-8P-PWR-EI Ethernet switch provides a maximum output power of 15.4 W for the connected devices. The maximum output power for the whole system is 65 W.

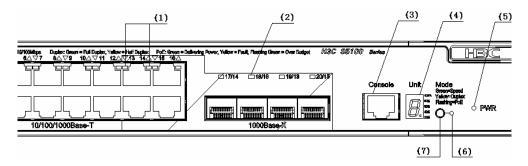
#### VI. Cooling system

An S5100-8P-PWR-EI Ethernet switch provides two fans for heat dissipation.

#### 1.3.8 S5100-16P-PWR-EI Ethernet Switch

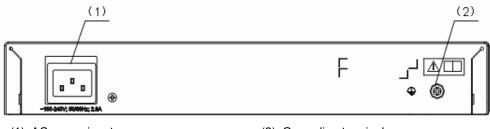
#### I. Front panel

An S5100-16P-PWR-EI Ethernet switch provides 16 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-24 shows the front panel of an S5100-16P-PWR-EI Ethernet switch.



- (1): 10/100/1000Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (3): Console port
- (4): 7-segment digitron display
- (5): Power LED
- (6): Ethernet port mode switching LED
- (7): Port status LED mode switch

Figure 1-24 Front panel of an S5100-16P-PWR-EI Ethernet switch



(1): AC power input

(2): Grounding terminal

Figure 1-25 Rear panel of an S5100-16P-PWR-EI Ethernet switch

#### III. Side panel

An S5100-16P-PWR-EI Ethernet switch provides a lock hole for locking the switch to a secure object for theft prevention.

The lock hole is on the back of the left side panel, as shown in Figure 1-3.

#### Mote:

The lock hole cannot be used when the screw hole above it is in use.

#### IV. Power supply system

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

#### V. PoE

S5100-16P-PWR-EI Ethernet switches support PoE. They can be connected to remote PDs, such as IP phones, WLAN APs, Security and Bluetooth APs, over twisted pair cables to remotely supply -48 VDC power to the connected PDs.

- When serving as a PSE, an S5100-16P-PWR-EI Ethernet switch supports IEEE802.3af standards and can also supply power to some of the PDs incompatible with 802.3af standards.
- An S5100-16P-PWR-EI Ethernet switch can provide power supplies through its 16 fixed Ethernet electrical ports over a distance of up to 100 m (328 feet).
- Each Ethernet port on an S5100-16P-PWR-EI Ethernet switch provides a maximum output power of 15.4 W for the connected devices. The maximum output power for the whole system is 125 W.

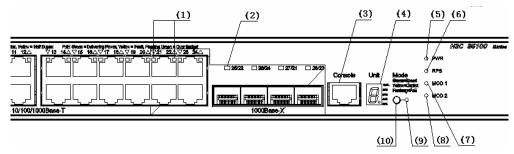
#### VI. Cooling system

An S5100-16P-PWR-EI Ethernet switch provides three fans for heat dissipation.

#### 1.3.9 S5100-26C-PWR-EI Ethernet Switch

#### I. Front panel

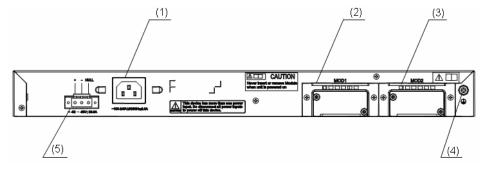
An S5100-26C-PWR-EI Ethernet switch provides 24 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-26 shows the front panel of an S5100-26C-PWR-EI Ethernet switch.



- (1): 10/100/1000 Base-T autosensing Ethernet port status LEDs
- (2): 1000Base-X SFP port status LED
- (4): 7-segment digitron display
- (6): DC power LED
- (8): 10 G interface slot 2 LED
- (10) Port status LED mode switch
- (3): Console port (5): Power LED
- (7): 10 G interface slot 1 LED
- (9): Ethernet port mode switching LED

Figure 1-26 Front panel of an S5100-26C-PWR-EI Ethernet switch

#### II. Rear panel



- (1): AC power input
- (3): 10 G interface slot 2
- (5): DC power input

- (2): 10 G interface slot 1
- (4): Grounding terminal

Figure 1-27 Rear panel of an S5100-26C-PWR-EI Ethernet switch

#### III. Power supply system

An S5100-26C-PWR-EI switch provides AC power input and RPS DC input. The AC/DC power inputs can be used at the same time, acting as backup for each other. Alternatively, you can use either the AC power input alone or the DC power input alone. Make sure you use an RPS module recommended by H3C as the DC power input.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz

Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

• DC input:

Voltage range: -52 VDC to -55 VDC

#### IV. PoE

S5100-26C-PWR-EI Ethernet switches support PoE. They can be connected to remote PDs, such as IP phones, WLAN APs, Security and Bluetooth APs, over twisted pair cables to remotely supply -48 VDC power to the connected PDs.

- When serving as a PSE, an S5100-26C-PWR-EI Ethernet switch supports IEEE802.3af standards and can also supply power to some of the PDs incompatible with 802.3af standards.
- An S5100-26C-PWR-EI Ethernet switch can provide power supplies through its 24 fixed Ethernet electrical ports over a distance of up to 100 m (328 feet).
- Each Ethernet port on an S5100-26C-PWR-EI Ethernet switch provides a maximum output power of 15.4 W for the connected devices. The maximum output power for the whole system is 370 W.

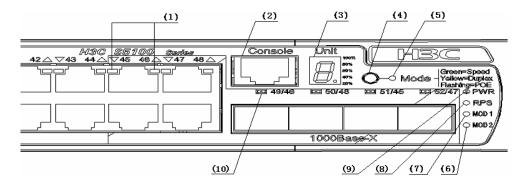
#### V. Cooling system

An S5100-26C-PWR-EI Ethernet switch provides two fans for cooling the whole device and three fans for cooling the power supply system.

#### 1.3.10 S5100-50C-PWR-EI Ethernet Switch

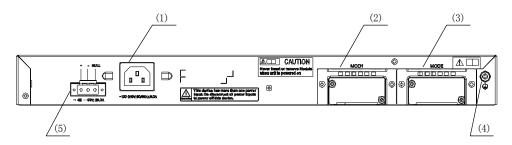
#### I. Front panel

An S5100-50C-PWR-EI Ethernet switch provides 48 x 10/100/1000Base-T autosensing Ethernet ports, four 1000Base-X SFP ports, and one console port on the front panel. An SFP port and its corresponding 10/100/1000Base-T autosensing Ethernet port form a Combo port. That is, only one of the two ports forming the Combo port can be used at a time. Table 1-2 shows the mapping relations between the ports forming the Combo port. Figure 1-28 shows the front panel of an S5100-50C-PWR-EI Ethernet switch.



- (1): 10/100/1000 Base-T autosensing Ethernet port status LEDs
- (2): Console port
- (4): Port status LED mode switch
- (6): 10 G interface slot 2 LED
- (8): DC power LED
- (10): 1000Base-X SFP port status LED
- (3): 7-segment digitron display
- (5): Ethernet port mode switching LED
- (7): 10 G interface slot 1 LED
- (9): Power LED

Figure 1-28 Front panel of an S5100-50C-PWR-EI Ethernet switch



- (1): AC power input
- (3): 10 G interface slot 2
- (5): DC power input

- (2): 10 G interface slot 1
- (4): Grounding terminal

Figure 1-29 Rear panel of an S5100-50C-PWR-EI Ethernet switch

#### III. Power supply system

An S5100-50C-PWR-EI switch provides AC power input and RPS DC input. The AC/DC power inputs can be used at the same time, acting as backup for each other. Alternatively, you can use either the AC power input alone or the DC power input alone. If DC power input is used, make sure you use an RPS module recommended by H3C as the DC power input and use an external PoE module recommended by H3C as the DC power supply. Do not directly use -48 V equipment-room DC power supply because doing so may damage the device.

AC input:

Rated voltage range: 100 VAC to 240 VAC; 50 Hz or 60 Hz

Max voltage range: 90 VAC to 264 VAC; 47 Hz to 63 Hz

DC input:

Voltage range: -52 VDC to -55 VDC

#### IV. PoE

S5100-50C-PWR-EI Ethernet switches support PoE. They can be connected to remote PDs, such as IP phones, WLAN APs, Security and Bluetooth APs, over twisted pair cables to remotely supply -48 VDC power to the connected PDs.

- When serving as a PSE, an S5100-50C-PWR-EI Ethernet switch supports IEEE802.3af standards and can also supply power to some of the PDs incompatible with 802.3af standards.
- An S5100-50C-PWR-EI Ethernet switch can provide power supplies through its 48 fixed Ethernet electrical ports over a distance of up to 100 m (328 feet).
- Each Ethernet port on an S5100-50C-PWR-EI Ethernet switch provides a
  maximum output power of 15.4 W for the connected devices. When AC power
  input is used, the maximum output power for the whole system is 370 W; when DC
  power input is used, the maximum output power for the whole system is 740 W.

#### V. Cooling system

An S5100-50C-PWR-EI Ethernet switch provides three fans for cooling the whole device and three fans for cooling the power supply system.

#### 1.4 LEDs

The S5100 series provide a power LED (PWR), a DC power LED (RPS), Gigabit autosensing Ethernet port status LEDs, a Gigabit SFP port status LED, an Ethernet port mode LED (MODE), module indicator, and a 7-segment digitron display.

#### 1.4.1 Power LED (PWR)

The PWR LED is a green-red indicator.

Table 1-3 Description of the power LED

LED	Mark	Status	Description
		Yellow, ON	The switch is starting.
		Green, ON	The switch has been normally started.
	ower LED PWR	Green, blinking (1 Hz)	The system is performing POST (power-on self test) or downloading software.
Power LED   PV		Red, ON	The system POST has failed or another fatal error has been detected.
		Yellow, blinking (1 Hz)	One or more ports have failed in POST or other non-fatal errors have been detected.
	OFF	The switch has been powered off.	

## 1.4.2 DC Power Supply LED (RPS)

The RPS LED is a yellow-green indicator.

Table 1-4 Description of the DC power supply LED

LED	Mark	Status	Description
	Green, ON	Both AC and DC inputs are normal.	
DC power supply LED	RPS	Yellow, ON	The AC input is abnormal; the DC input is normal.
		OFF	There is no DC input.

#### ■ Note:

Only the S5100-24P-EI, S5100-48P-EI, S5100-26C-EI, S5100-50C-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI switches provide DC power supply LEDs.

#### 1.4.3 Mode LED

The mode LED is a yellow-green indicator.

Table 1-5 Description of the mode LED

LED	Mark	Status	Description
	OFF	Invalid	
	Mode LED Mode	Green, ON	The port LED is indicating rate mode.
Mode LED		Yellow, ON	The port LED is indicating duplex mode.
	Green, blinking (1 Hz)	The port LED is indicating PoE mode.	

# 1.4.4 Gigabit Autosensing Ethernet Port Status LEDs

The Gigabit autosensing Ethernet port status LEDs are yellow-green indicator.

Table 1-6 Description of Gigabit autosensing Ethernet port status LEDs

D( 1 -		D	
Port mode	L	.ED status	Description
Rate mode	Green	ON	The port is connected at 1,000 Mbps.
		Blinking (30 ms per packet)	The port is receiving or sending data at 1,000 Mbps.
	Yellow	ON	The port is connected at 10/100 Mbps.
		Blinking (30 ms per packet)	The port is receiving or sending data at 10/100 Mbps.
		Blinking (3 Hz)	Port POST has failed.
	OFF		The port is not connected.
Duplex mode	Green	ON	The port is working in full duplex mode.
		Blinking (30 ms per packet)	The port is receiving or sending data in full duplex mode.
	Yellow	ON	The port is working in half duplex mode.
		Blinking (30 ms per packet)	The port is receiving or sending data in half duplex mode.
		Blinking (3 Hz)	Port POST has failed.
	OFF		The port is not connected.

Port mode	LED status		Description
PoE mode	Green	ON	Power supply is normal.
		Blinking (3 Hz)	The power required exceeds the maximum output power of the port or the available power of the switch is insufficient.
	Yellow	ON	PoE malfunctioned, and the power supply failed.
		Blinking (3 Hz)	Port POST (power-on self test) failed.
	OFF		There is no power supply.

# 1.4.5 Gigabit SFP Port Status LED

The Gigabit SFP LED is a yellow-green indicator.

Table 1-7 Description of the Gigabit SFP port status LED

LED	Status				Description
	Rate mode	Green	ON		The port is connected at 1,000 Mbps.
			Blinking ms packet)	(30 per	The port is receiving or sending data at 1,000 Mbps.
		Yellow	ON		The port is connected at 10/100 Mbps.
			Blinking ms packet)	(30 per	The port is receiving or sending data at 10/100 Mbps.
			Blinking Hz)	(3	Port POST has failed.
1000Base		OFF			The port is not connected.
-X SFP port status LED	Duplex mode	Green	ON		The port is working in full duplex mode.
			Blinking		The port is receiving or sending data in full duplex mode.
		Yellow	ON		The port is working in half duplex mode.
			Blinking ms packet)	(30 per	The port is receiving or sending data in half duplex mode.
			Blinking Hz)	(3	Port POST has failed.
		OFF			The port is not connected.
	PoE	Yellow, blinking (3 Hz)		Hz)	Port POST has failed.
		OFF			There is no power supply.

## 1.4.6 Module LED

The module LED is a green-yellow indicator.

Table 1-8 Description of the module LED

LED	Mark	Status	Description	
Module LED	MOD1 (or MOD2)	OFF	The module has not been installed or connected.	
		Green, ON	The module has been installed and connected.	
		Green, blinking	The module is receiving or sending data.	
		Yellow, blinking (3 Hz)	Module POST has failed.	
		Yellow, ON	The device does not support this module.	

#### ■ Note:

Only the S5100-26C-EI, S5100-50C-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI Ethernet switches provide module LEDs.

# 1.4.7 7-Segment Digitron Display

A green 7-segment digitron display is employed to give indication.

Table 1-9 Description of the 7-segment digitron display

LED	Mark	Device status	PWR LED status	Description
7-segm ent digitron display	Unit	POST running	Green, blinking	The POST ID of the in-process test is displayed.
		POST failed	Red, ON	The POST ID of the failed test blinks.
		Loading software	Green, blinking	A light bar rotates clockwise around the display during the downloading procedure.
		Fan failure	Red, ON	An "F" is displayed.
		Unit ID	Green, ON	A "1" is displayed.
		Cluster Manage ment	Green, ON	A "C" is displayed on command switch. An "S" is displayed on member switch.  A "c" is displayed on candidate switch.  An "I" is displayed on independent switch.
		Over-tem perature alarm	Red, ON	The digitron display shows a "t".
		PoE status (for the S5100-EI series only)	Green, ON	The ratio of the power used by the port for PoE to the total available power is displayed.  11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

## 1.5 System Features of the S5100 Series

## 1.5.1 System Features of the S5100-SI Series

Table 1-10 System features of the S5100-SI series

Item	S5100-8P-SI	S5100-16P-SI	S5100-24P- SI	S5100-48P-SI
Dimension s (H × W × D)	43.6 × 230 × 200 mm (1.7 × 9.1 × 7.9 in.)	43.6 × 300 × 220 mm (1.7 × 11.8 × 8.7 in.)	$220 \text{ mm} (1.7 \times   43.6 \times 440 \times 260 \text{ mm}) (1.7 \times   47.3 \times 10.2 \text{ in})$	
Weight	< 1.6 kg (< 3.5 lb.)	< 2.3 kg (< 5.1 lb.)	<pre>&lt; 4 kg (&lt; 8.8 lb.)</pre>	4 kg (8.8 lb.)
Service ports	8 × 10/100/1000Bas e-T autosensing Ethernet ports 2 × 1000Base-X SFP ports	x 16 x 10/100/1000Bas e-T autosensing Ethernet ports Ethernet ports 2 × 1000Base-X 4 Gigabit SFP		48 × 10/100/1000 Base-T autosensing Ethernet ports 4 Gigabit SFP Combo ports
Managem ent port	One console port			
Power supply system	The S5100-SI series support AC power input.  Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60Hz  Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz			
Max power consumpti on	18 W 26 W 46 W		97 W	
Fan	1 1 1		1	2
Operating temperatur e	0°C to 45°C (32°F to 113°F)			
Relative humidity (nonconde nsing)	10% to 90%			

## 1.5.2 System Features of the S5100-El Series

**Table 1-11** System features of the S5100-EI series (1)

Item	S5100-8P-EI	S5100-16P-EI	S5100-24P-E I	S5100-48P-E I
Dimensions (H × W × D)	43.6 × 230 × 200 mm (1.7 × 9.1 × 7.9 in.)	43.6 × 300 × 220 mm (1.7 × 11.8 × 8.7 in.)	43.6 × 440 × 2 17.3 × 10.2 in.)	260 mm (1.7 ×
Weight	< 1.6 kg (< 3.5 lb.)	< 2.3 kg (< 5.1 lb.)	< 4 kg (< 8.8 lb.)	4 kg (8.8 lb.)
Service ports	10/100/1000B ase-T autosensing Ethernet ports 2 × 1000Base X 10/100/1000Ba se-T autosensing Ethernet ports 4 Gigabit SFP		24 × 10/100/1000 Base-T autosensing Ethernet ports 4 Gigabit SFP Combo ports	48 × 10/100/1000 Base-T autosensing Ethernet ports 4 Gigabit SFP Combo ports
Managemen t port	One console port			
Power supply system	The S5100-El series support AC input and DC input. AC input: Rated voltage range: 100 VAC to 240 VAC, 50 Hz or 60Hz Max voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz DC input (for the S5100-24P-El and S5100-48P-El): Rated voltage range: -48 VDC to -60 VDC Max voltage range:-36 VDC to -72 VDC			
Max power consumption	18 W	26 W	46 W	97 W
Fan	1 1		1 2	
Operating temperature	0°C to 45°C (32°F to 113°F)			
Relative humidity (noncondens ing)	10% to 90%			

Table 1-12 System features of the S5100-EI series (2)

Item	S5100-26C-EI	S5100-50C-EI	
Dimensions (H × W × D)	43.6 × 440 × 300 mr	43.6 × 440 × 300 mm (1.7 × 17.3 × 11.8 in.)	
Weight	4 kg (8.8 lb.)	< 5 kg (< 11 lb.)	

Item	S5100-26C-EI	S5100-50C-EI		
Service ports	24 × 10/100/1000MBase-T autosensing Ethernet ports 4 Gigabit SFP Combo ports	48 × 10/100/1000MBase-T autosensing Ethernet ports 4 Gigabit SFP Combo ports		
Extension slots	Two 10 G slots	Two 10 G slots		
Managemen t port	One console port			
Power supply system	AC input: Rated voltage range: 100 VAC to Max voltage range: 90 VAC to 26 DC input:	red voltage range: 100 VAC to 240 VAC, 50 Hz or 60Hz x voltage range: 90 VAC to 264 VAC, 47 Hz to 63 Hz input: red voltage range: -48 VDC to -60 VDC		
Max power consumption	68 W	116 W		
Fan	2 3			
Operating temperature	0°C to 45°C (32°F to 113°F)			
Relative humidity (noncondens ing)	10% to 90%	10% to 90%		

Table 1-13 System features of the S5100-EI series (3)

Item	S5100-8P-P WR-EI	S5100-16P- PWR-EI	S5100-26C-PW R-EI	S5100-50C-PW R-EI
Dimensions (H × W × D)	43.6 × 300 × 220 mm (1.7 × 11.8 × 8.7 in.)	43.6 × 300 × 260 mm (1.7 × 11.8 × 10.2 in.)	43.6 × 440 × 420 16.5 in.)	mm (1.7 × 17.3 ×
Weight	2.5 kg (5.5 lb.)	< 3.1 kg (< 6.8 lb.)	< 6.9 kg (15.2 lb.)	< 7.4 kg (16.3 lb.)
Managemen t port	One console port			

Ite	em	S5100-8P-P WR-EI	S5100-16P- PWR-EI	S5100-26C-PW R-EI	S5100-50C-PW R-EI
Servic	e ports	8 × 10/100/1000 Base-T autosensing Ethernet ports 2 × 1000Base-X SFP ports	16 × 10/100/1000 Base-T autosensing Ethernet ports 4 Gigabit SFP Combo ports	24 × 10/100/1000Bas e-T autosensing Ethernet ports 4 Gigabit SFP Combo ports	48 × 10/100/1000 Base-T autosensing Ethernet ports 4 Gigabit SFP Combo ports
Extens slots	sion	_	_	Two 10 G slots	Two 10 G slots
Input v	voltage	AC input: Rated voltage Max voltage ra DC input (for S	El series support AC input and DC input.  ge range: 100 VAC to 240 VAC, 50 Hz or 60Hz range: 90 VAC to 264 VAC, 47 Hz to 63 Hz r S5100-26C-PWR-El and S5100-50C-PWR-El): ge: -52 VDC to -55 VDC		z or 60Hz o 63 Hz
Whe n all the	Max pow er cons umpt ion	100 W	170 W	AC input: 500 W DC input:435 W	AC input: 540 W DC input: 840 W
ports provi de PoE exter nally	Max pow er supp lied exter nally (PoE )	15.4 W × 4	15.4 W × 8	15.4 W × 24	AC input: 15.4 W × 24 DC input: 15.4 W × 48
Fan		Two fans for cooling the whole device  Three fans for cooling the power supply system		Three fans for cooling the whole device Three fans for cooling the power supply system	
Opera tempe		0°C to 45°C (32°F to 113°F)			
Relative humidi (nonco ing)		10% to 90%	90%		

The S5100-8P-PWR-EI, S5100-16P-PWR-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI Ethernet switches provide over-temperature protection. With this mechanism, the switch disables the PoE feature on all its ports for self-protection when its internal temperature exceeds the PoE protection temperature, and restores the PoE feature on all its ports when its internal temperature drops below the PoE restoration temperature. Table 1-14 lists the PoE protection temperatures and restoration temperatures

**Table 1-14** PoE protection temperatures and restoration temperatures

Item	PoE protection temperature (°C)	PoE restoration temperature (°C)
S5100-8P-PWR-EI	73	68
S5100-16P-PWR-EI	61	56
S5100-26C-PWR-EI	61	56
S5100-50C-PWR-EI	61	56

## 1.6 Ordering SFP/XFP/XENPAK Interface Modules

**Table 1-15** Ordering information for the interface modules

Item		Item	Model
		400 M OFF modulos	SFP-FE-SX-MM1310-A
			SFP-FE-LX-SM1310-A
		100 M SFP modules	SFP-FE-LH40-SM1310
			SFP-FE-LH80-SM1550
			SFP-GE-SX-MM850-A
	optical	Gigabit SFP modules	SFP-GE-LX-SM1310-A
SFP			SFP-GE-LH40-SM1310
modules			SFP-GE-LH40-SM1550
			SFP-GE-LH70-SM1550
		SFP electrical ports	SFP-GE-T
		Gigabit BIDI modules	SFP-GE-LX-SM1310-BIDI
			SFP-GE-LX-SM1490-BIDI
		400 M DIDI waa dadaa	SFP-FE-LX-SM1310-BIDI
		100 M BIDI modules	SFP-FE-LX-SM1550-BIDI

Item	Model
	XFP-SX-MM850
XFP modules	XFP-LX-SM1310
	XFP-LH40-SM1550-F1
	XENPAK-SX-MM850
XENPAK optical modules	XENPAK-LX-SM1310
	XENPAK-LH40-SM1550

#### ■ Note:

- You are recommended to use H3C's optical modules for the S5100-SI/EI series Ethernet switches.
- Only the S5100-26C-EI, S5100-50C-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI switches support XFP optical modules, but these switches do not support the XFP modules that require -5.2 V power supply.
- Only the S5100-26C-EI, S5100-50C-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI switches support XENPAK optical modules.
- BIDI modules must be used in pair. For example, if an SFP-GE-LX-SM1310-BIDI is
  used at one end, an SFP-GE-LX-SM1490-BIDI module must be used at the other
  end. 100 M BIDI modules must also be used in pair.
- For detailed SFP module specifications, see *H3C Low-End Series Ethernet Switches Pluggable Module Manual.*

## 1.7 Ordering 10 G Stack Interface Modules

Table 1-16 Ordering information for 10 G stack interface modules

Model No.	Description
LS5M1XS1PA	Single-port 10 G Ethernet stack interface board (STACK)

#### A Note:

Only the S5100-26C-EI, S5100-50C-EI, S5100-26C-PWR-EI, and S5100-50C-PWR-EI switches support 10 G stack modules.

## 1.8 Ordering Stack Cables

Table 1-17 Ordering information for stack cables

Model No.	Length	Description
LS5M2STK1	50 cm (19.7 in.)	CX4 stack cable (50 cm)
LS5M2STK2	100 cm (39.4 in.)	CX4 stack cable (1.0 m)
LS5M2STK3	300 cm (118.1 in.)	CX4 stack cable (3.0 m)

## 1.9 Ordering DC Power cords

**Table 1-18** Ordering information for DC power cords

Model No.	Length	Description
CAB-48V Pwr-2m-T2.5^2	2 m (6.6 ft.)	Power cord 14AWG 2 m
CAB-RPS Non PoE-2m-JD5	2 m (6.6 ft.)	JD5 DC power cord
CAB-RPS Non PoE-2m-JD5-A	2 m (6.6 ft.)	JD5-A DC power cord

## **Chapter 2 Preparing for Installation**

## 2.1 Safety Precautions

To avoid any device impairment or bodily injury caused by improper use, observe these rules:

- Before cleaning the switch, unplug the power plug from the switch first. Do not clean the switch with wet cloth or liquid.
- Do not place the switch near water or any damp area. Prevent water or moisture from entering the switch chassis.
- Do not place the switch on an unstable case or desk. The switch might be damaged severely in case of a fall.
- Ensure proper ventilation of the equipment room and keep the ventilation vents of the switch free of obstruction.
- Make sure that the operating voltage is the same as that labeled on the switch.
- Do not open the chassis while the switch is operating or when electrical hazards are present to avoid electrical shocks.
- When replacing interface cards, wear ESD-preventive gloves to avoid damaging the cards.

### 2.2 Installation Site

The S5100 series must be used indoors. You can mount your switch in a rack or on a tabletop/workbench, but make sure:

- Adequate clearance is reserved at the air inlet/exhaust vents for ventilation.
- The rack or table/workbench has a good ventilation system.
- The rack is sturdy enough to support the device and its accessories.
- The rack or table/workbench is well earthed.

To ensure normal operation and long service life of an S5100 switch, install it in an environment that meets the requirements described in the following subsections.

### 2.2.1 Temperature/Humidity

You need to maintain a proper temperature and humidity in the equipment room.

- Long-term high humidity may lead to bad insulation, electricity leakage, mechanical property changes, and corrosion.
- If the relative humidity is two low, captive screws may become loose as the result
  of contraction of insulation washers and static electricity may be produced in a dry
  environment to jeopardize the circuits on the device.

High temperature is the most undesirable condition, because it accelerates aging
of insulation materials and can thus significantly lower reliability and service life of
your switch.

For the detailed temperature/humidity requirements for the products, see section 1.5 System Features of the S5100 Series.

#### 2.2.2 Cleanness

Dust is a hazard to the operating safety of your device. The dust accumulated on the chassis can be adsorbed by static electricity and result in poor contact of metal connectors or metal contact points. When the relative indoor humidity is low, especially, electrostatic adsorption is more likely to happen. This can not only shorten the service life of your device but also cause communications failures. The following table lists the dust concentration limit.

**Table 2-1** Dust concentration limit in the equipment room

Substance Unit		Concentration limit		
Dust	Particles/m³	$\leq$ 3 × 10 <sup>4</sup> (No visible dust on the tabletop for three days)		
Note: The dust particle size is greater than or equal to 5 μm				

Besides dust, there are rigorous limits on the content of harmful substances that can accelerate the corrosion and aging of metals, such as salts, acids, and sulfides in the air in the equipment room, and the equipment room must be protected against ingression of harmful gases such as SO<sub>2</sub>, H<sub>2</sub>S, NH<sub>3</sub>, and Cl<sub>2</sub>. For the specific requirement, see the following table.

Table 2-2 Harmful gas limits in the equipment room

Gas	Maximum concentration (mg/m³)
SO <sub>2</sub>	0.2
H <sub>2</sub> S	0.006
NH <sub>3</sub>	0.05
Cl <sub>2</sub>	0.01

#### 2.2.3 Electromagnetic Susceptibility

The operation of your switch can be affected by external interferences, such as conducted emission by capacitance coupling, inductance coupling, electromagnetic wave radiation, and common impedance (including the grounding system) coupling,

and leads (power cords, signaling cables and output wires). To eliminate the interferences, ensure the following:

- For the AC power supply that adopts TN system, use a single-phase three-wire power socket with Protection Earth (PE) to effectively filter interference from the power grid.
- Keep the device far from radio transmitting stations, radar stations, and high-frequency devices.
- Use electromagnetic shielding when necessary, for example, use shielded interface cables.
- Route interface cables only indoors to prevent signal ports from getting damaged by overvoltage or overcurrent caused by lightning strikes.

### 2.2.4 Safety in Use of Laser

The S5100 series are class-1 laser devices.

When the extended optical interface cards on your switch are operating, do not stare into the optical ports because the laser light emitted by the optical fiber can hurt your retina.



Staring into the laser beam produced by the fiber can hurt your eyes.

### 2.3 Installation Tools

- Flathead screwdrivers
- Phillips screwdrivers
- ESD-preventive wrist strap



!\ Caution:

The installation tools are not provided with the S5100 series.

## **Chapter 3 Installing the Switch**



# Caution:

When you ask your sales agent to maintain the switch, you must ensure that the dismantlement-preventive seal on a mounting screw of the switch chassis is intact. If you want to open the chassis, you should contact the agent for permission. Otherwise, you will bear any consequence resulted from your actions without permission.

## 3.1 Rack-Mounting the Switch

You can mount an H3C S5100 switch into a 19-inch standard rack in one of the following four ways:

- Use front mounting ears
- Use front mounting ears and rear mounting ears
- Use front mounting ears and a tray
- Use front mounting ears and guide rails

The installation methods of a switch depend on the depth and width of the switch. For the specific installation methods, see Table 3-1 and Table 3-2.

Table 3-1 Installation methods for a switch with a width of 440 mm or 436 mm (17.3 in. or 17.2 in)

Method Depth	Use front mounting ears	Use front and rear mounting ears	Use front mounting ears and a tray	Use front mounting ears and guide rails
≤ 300 mm (11.8 in.)	V	_	$\checkmark$	$\checkmark$
360 mm (14.2 in.)	_	<b>√</b>	$\checkmark$	<b>V</b>
420 mm (16.5 in.)	_	V	V	<b>√</b>

**Use front Use front Use front** Use front and Method mounting mountings mounting rear mounting ear and a ears and **Depth** ears ears guide rails tray ≤ 300 mm (11.8 in.) 360 mm (14.2 in.) 420 mm (16.5 in.)

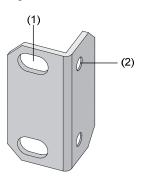
Table 3-2 Installation method for a switch with a width less than 436 mm (17.2 in.)

#### A Note:

- When the depth of a switch is greater than 300 mm (11.8 in.), the front mounting ears only secure the switch rather than bear its weight.
- Guide rails purchased from H3C apply only to standard racks 1,000 mm (39.4 in.) deep. Use other supports to substitute for guide rails in the case of other rack depths.

### 3.1.1 Introduction to Mounting Ear

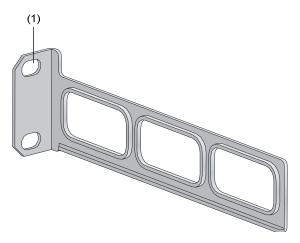
Figure 3-1 shows the appearance of a front mounting ear.



- (1) Screw hole used to fix the mounting ear to the cabinet (Use one M6 screw)
- (2) Screw hole used to fix the switch to the mounting ear

Figure 3-1 Appearance of a front mounting ear

Figure 3-2 shows the appearance of a rear mounting ear.



(1) Screw hole used to fix the mounting ear to the rack (Use one M6 screw)

Figure 3-2 Appearance of a rear mounting ear

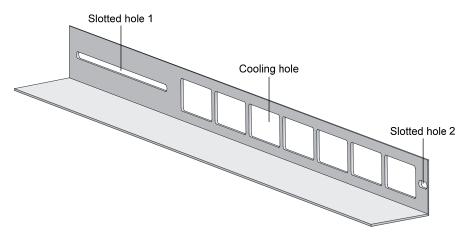
When you install an H3C S5100 series switch into a 19-inch standard rack, you should select front mounting ears with a proper length (L1 as shown in Figure 3-1) according to the physical dimensions of the switch. For the selection of front and rear mounting ears, see Table 3-3.

Table 3-3 Selection of mounting ear for the H3C S5100 series Ethernet Switches

Model	Physical dimensions (H x W x D)	Configuration type of front mounting ear	Configuration type of rear mounting ear
S5100-8P-SI S5100-8P-EI	43.6 × 230 × 200 mm (1.7 x 9.1 x 7.9 in.)	Optional	_
S5100-16P-SI S5100-16P-EI S5100-8P-PWR-EI	43.6 × 300 × 220 mm (1.7 × 11.8 × 8.7 in.)	Optional	_
S5100-24P-SI S5100-24P-EI S5100-48P-SI S5100-48P-EI	43.6 × 440 × 260 mm (1.7 × 17.3 × 10.2 in.)	Standard	_
S5100-26C-EI S5100-50C-EI	43.6 × 440 × 300 mm (1.7 × 17.3 × 11.8 in.)	Standard	_
S5100-16P-PWR-E	43.6 × 300 × 260 mm (1.7 × 11.8 × 10.2 in.)	Optional	_
S5100-26C-PWR-E I S5100-50C-PWR-E I	43.6 × 440 × 420 ×mm (1.7 × 17.3 × 16.5 in.)	Standard	Standard

#### 3.1.2 Introduction to Guide Rail

Figure 3-3 shows the appearance of a guide rail.



Slotted hole 1: Used to fix the guide rail to the rear bracket. You can adjust the screw hole position according to the position of the switch.

Cooling hole: Used for heat dissipation between switch and rack Slotted hole 2: Used to fix the guide rail to the front bracket

Figure 3-3 Appearance of a guide rail

#### □ Note:

No guide rails are delivered with the device. See Table 3-1 and Table 3-2 to decide whether any guide rails are needed.

### 3.1.3 Using Front Mounting Ears to Install a Switch

Follow these steps to mount a switch into a 19-inch standard rack with front mounting ears:

- 1) Wear an ESD-preventive wrist strap to check the grounding and stability of the rack.
- 2) Take out the screws which are packed together with the front mounting ears, and fix one end of mounting ears to the switch, as shown in Figure 3-4.

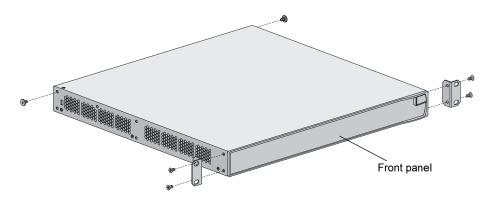


Figure 3-4 Fix front mounting ears

3) Place the switch horizontally in a proper position, and fix the other end of mounting ears to the front brackets with screws and captive nuts, as shown in Figure 3-5.

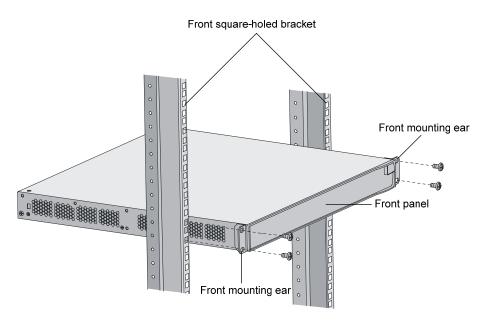


Figure 3-5 Mounting the switch with front mounting ears and a tray

### 3.1.4 Use Front Mounting Ears and a Tray

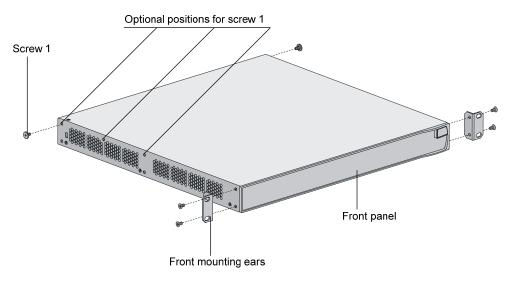
Follow these steps to install a switch into a 19-inch standard rack with front mounting ears and a tray:

- 1) Wear an ESD-preventive wrist strap to check the grounding and stability of the rack.
- 2) Fix the delivered tray horizontally in a proper position.
- 3) Take out the screws which are packed together with the front mounting ears, and fix one end of mounting ears to the switch, as shown in Figure 3-4.
- 4) Place the switch on the tray horizontally, slide the tray into the cabinet, and fix the other end of mounting ears to the front brackets with crews and captive nuts, as shown in Figure 3-5.

### 3.1.5 Use Front and Rear Mounting Ears

Follow these steps to install a switch into a 19-inch standard rack with front and rear mounting ears:

- 1) Wear an ESD-preventive wrist strap to check the grounding and stability of the rack.
- 2) Take out the screws which are packed together with the front mounting ears, and fix one end of mounting ears to the switch, as shown in Figure 3-4.
- 3) Take out the load-bearing screws (packed together with the rear mounting ears) and place them in a proper position on the sides of the switch, as shown in Figure 3-6.



Screw 1: Load-bearing screw

Figure 3-6 Fix front mounting ears and load-bearing screws

#### □ Note:

There are three positions to mount a load-bearing screw on both sides of a switch. You should select a proper position according to the actual requirements. The rear mounting ears tightly contacted with the load-bearing screws can support the switch.

4) Select a position to install the switch and fix the rear mounting ears to the rear brackets with screws and captive nuts, as shown in Figure 3-7.

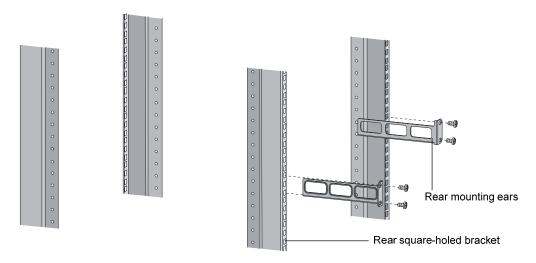
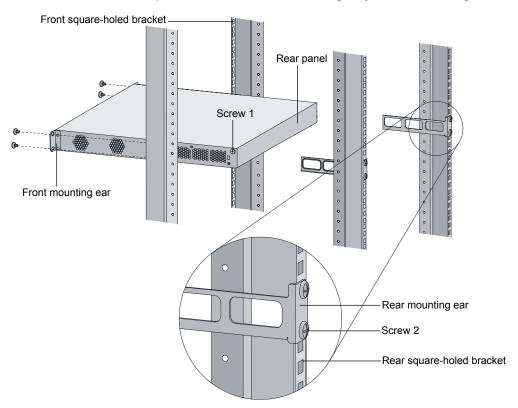


Figure 3-7 Fix rear mounting ears

5) Hold the bottom of the switch with one hand and the front part of the switch with the other hand, and pull the switch into the cabinet gently, as shown in Figure 3-8.

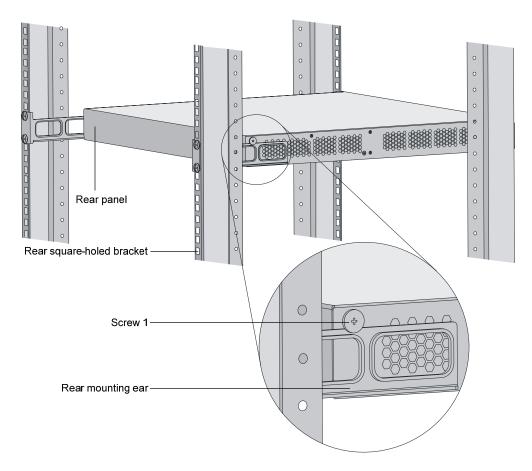


Screw 1: Used to bear the weight

Screw 2: Used to fix rear mounting ears to rear brackets

Figure 3-8 Fix front and rear mounting ears

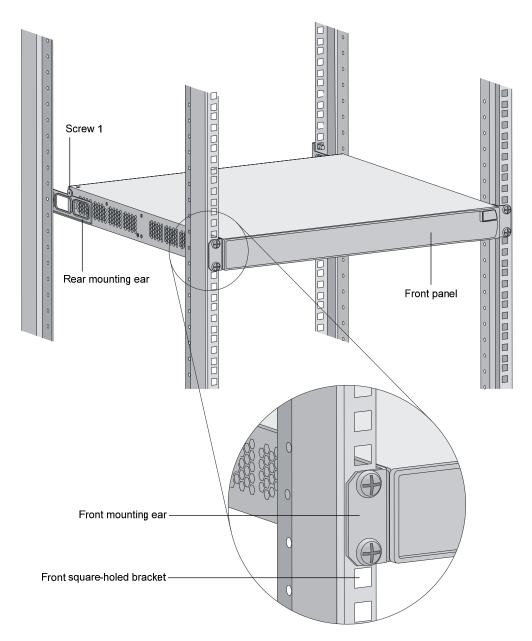
After the switch is pushed into the cabinet, ensure that the upper edge of rear mounting ears is tightly contacted with the load-bearing screw, as shown in Figure 3-9.



Screw 1: Load-bearing screw

Figure 3-9 Effect diagram of front and rear mounting ear installation (1)

6) Fix the other end of the front mounting ears to the front brackets with screws and captive nuts and ensure that front and rear mounting ears have fixed the switch in the cabinet securely, as shown in Figure 3-10.



Screw 1: Load-bearing screw

Figure 3-10 Effect diagram of front and rear mounting ear installation (2)

### 3.1.6 Use Front Mounting Ears and Guide Rails

Follow these steps to install a switch into a 19-inch standard rack with front mounting ears and guide rails:

- 1) Wear an ESD-preventive wrist strap to check the grounding and stability of the rack.
- 2) Take out the screws packed together with the front mounting ears and fix one end of the front mounting ears to the switch, as shown in Figure 3-11.

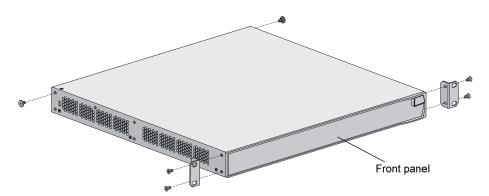


Figure 3-11 Fix front mounting ears

3) Install guide rails on the brackets on both sides of the cabinet with M5 self-tapping screws, as shown in Figure 3-12.

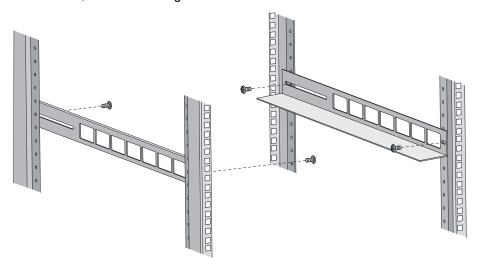


Figure 3-12 Install guide rails

4) Hold the two sides of the switch and slide it gently along the guide rails into the cabinet until it is located in a proper position, as shown in Figure 3-13. Ensure that the bottom side of the guide rails and the switch are in close contact.

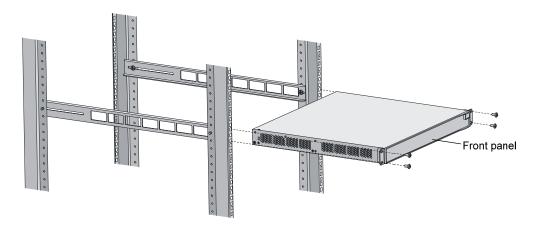


Figure 3-13 Install front mounting ears and guide rails

5) Fix the other end of front mounting ears to the front brackets of the cabinet with M6 screws and captive nuts and ensure that the front mounting ears and guide rails have fixed the switch in the cabinet securely, as shown in Figure 3-14.

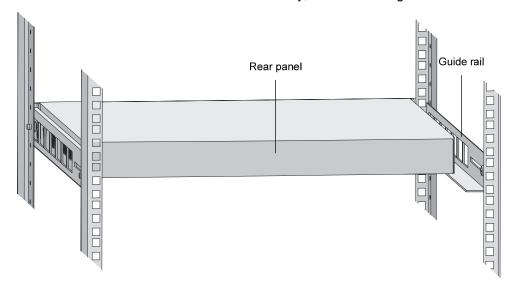


Figure 3-14 Effect diagram of front mounting ear and guide rail installation

#### ■ Note:

Ensure a clearance of 1U (44.45 mm, namely, 1.75 inches) between devices for the purpose of heat dissipation.

## 3.2 Desk Mounting

When no 19-inch standard rack is available, you can simply place the switch on a clean desk. When doing so, you should ensure that:

- The desk is stable and well grounded.
- The installation environment is drafty and a clearance about 10 cm (3.9 in) is reserved around the switch for heat dissipation.
- No heavy object is placed on the switch.
- A vertical distance of at least 1.5 cm (0.6 in) is kept between devices if you need to stack switches one upon another.

## 3.3 Wall Mounting

You can mount the S5100-8P-EI, S5100-16P-EI, S5100-8P-PWR-EI, and S5100-16P-PWR-EI series Ethernet switches on concrete walls or wood walls.

#### I. Introduction to screw and anchor kit

Figure 3-15 and Figure 3-16 show the recommended sizes (in mm) of screws and anchor kits used for mounting:

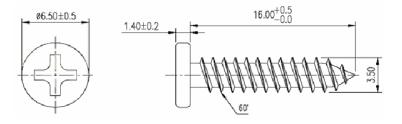
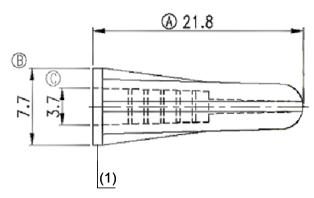


Figure 3-15 Screw



(1) Outside edge of anchor kit

Figure 3-16 Anchor kit

#### II. Installation procedure

The wall-mounting procedure is as follows:

1) As shown in Figure 3-17, drill two holes having a diameter of 5 mm (0.2 in.) in the wall on the same horizontal line, with a distance of 170 mm (6.7 in).

#### ■ Note:

Drill two holes according to the sizes of anchor kits and screws so that anchor kits could go into the holes, only the edges could remain outside the wall, and the screws could be fixed on the wall tightly.

- 2) Insert anchor kits into the holes and keep only the edges outside the wall.
- 3) As shown in Figure 3-17, drive screws into the anchor kits, keeping the inside of screw head at least 1.5 mm (0.06 in.) away from the edge of the anchor kit so that the switch could hang on the screws securely.

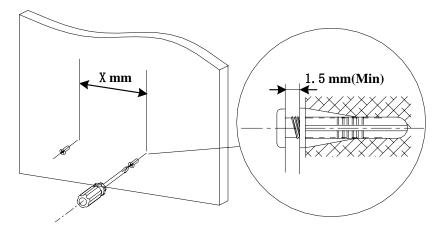


Figure 3-17 Wall mounting

4) Align the two installation holes at the bottom of the switch with these two screws to hang the switch.



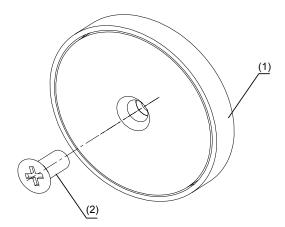
When mounting the switch, keep the Ethernet ports of the switch facing downwards and the two sides with ventilation holes vertical to the ground.

## 3.4 Magnet Mounting

The S5100-8P-EI, S5100-16P-EI, S5100-8P-PWR-EI, and S5100-16P-PWR-EI series Ethernet switches support magnet mounting:

#### I. Introduction to magnetic accessories

A set of magnetic mounting accessories consists of one permanent magnets and one M3\*6 countersunk head screws, as shown in Figure 3-18. Four sets of magnetic mounting accessories are needed for each S5100 switch.



(1) Permanent magnet

(2) M3\*6 countersunk head screw

Figure 3-18 Magnets and countersunk head screws

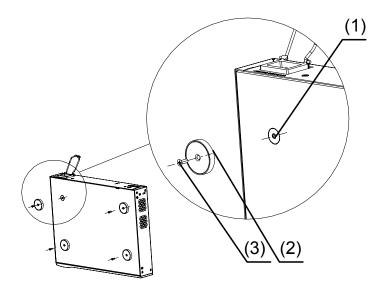
#### II. Installation procedure

Follow these steps to complete magnet mounting:

 As shown in Figure 3-19, use a Phillips screwdriver to pass the countersunk head screw through the round hole at the central of the permanent magnet, fasten it to a blind nut in the dent of the switch bottom, and ensure that the permanent magnet and the switch are fastened reliably.

#### A Note:

- Remove the cushion, if any, from the dent before installation.
- To ensure the firmness of installation, be sure to use four permanent magnets to secure each S5100 switch.
- 2) Attach the magnet-mounted device to the specified location. Take care not to get your fingers stuck between because the magnetism is very huge.



- (1) Blind nut in the dent of the switch bottom
- (3) M3\*6 countersunk head screw

(2) Permanent magnet

Figure 3-19 Magnet mounting

## ⚠ Caution:

- Apply magnet mounting to only the above four models. Otherwise, a falloff or mis-operation may occur.
- Select the installation location carefully. In the case of poor interface, magnet mounting may not be reliable.
- Put the device at a stable place free from vibrations or shocks. Otherwise, personal injuries or equipment damage may occur.
- Avoid installing the device at a high place because personal injuries or equipment damage may occur in case of a falloff.
- Avoid frequently moving the desk-mounted device because such movements may damage the surface coating.
- Keep the front panel of the device facing downwards and the two sides with ventilation holes vertical to the ground, if you want to install the device vertically.
- Pay attention that the weight of external cables should not bring about a falloff, which may result in personal injuries or equipment damage.
- Keep floppy disks and magnetic cards away from magnets to avoid erasure of any information.
- Keep computers and monitors that are easily influenced by magnetic fields away from magnets. Otherwise, faults may occur to these electronic devices.

## 3.5 Connecting Power Cord and Grounding Wire

### 3.5.1 Connecting AC Power Cord

#### I. AC power socket (recommended)

You are recommended to use a mono-phase three-wire power socket with a neutral point or a multi-function power socket for computers. The neutral point of the power in your building must be well grounded. Normally, the neutral point of the power supply system in your building has already been grounded during the construction and wiring; but you should make sure this is the fact.

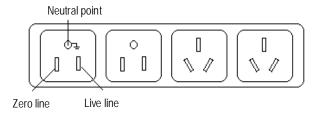
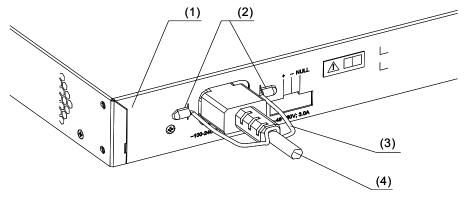


Figure 3-20 Recommended AC power socket

#### II. Connecting AC power cord

- 1) Connect one end of the grounding wire (delivered with the switch) to the grounding screw on the rear of the chassis and the other end to the ground nearby.
- 2) Connect one end of the power cord to the power socket on the rear panel of the chassis and the other end to an outside AC power socket.
- 3) Install the power cord tie for the AC power cord. Insert the two ends of the power cord tie into the slots at both sides of the AC power input, and then set the power cord into the notch of the power cord tie.



- (1): Rear panel
- (3): AC power cord tie

- (2): Slot of power cord tie
- (4): AC power cord

Figure 3-21 Install AC power cord ties

#### ■ Note:

The AC power cord tie can prevent the AC power cord from accidentally falling off.

4) Check whether the PWR LED on the front panel of the switch is ON. If yes, the power is properly connected.



Before powering on the switch, you should properly connect the grounding wire.

### 3.5.2 Connecting DC Power Cord



Figure 3-22 DC power socket for the switch

- 1) Connect one end of the grounding wire (delivered with the switch) to the grounding screw and the other end to the ground nearby.
- 2) Assemble the DC power connector as follows:

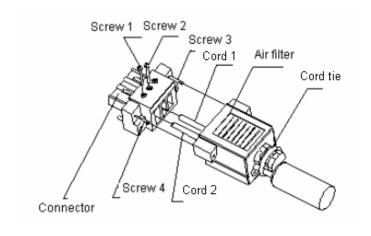


Figure 3-23 RPS DC power connector

- 3) As shown in Figure 3-23, pass the two power cords through the air filter, insert them into the corresponding holes, and tighten them with screw 1 and screw 2. The positive and negative poles of the power cords must correspond to the silkscreen above the holes.
- 4) Use a flathead screwdriver to fix the air filter on the connector with screw 3 and screw 4, as shown in Figure 3-23.
- 5) Use cable ties to bind the two power cords to the protruding part at the back of the air filter, as shown in Figure 3-23.

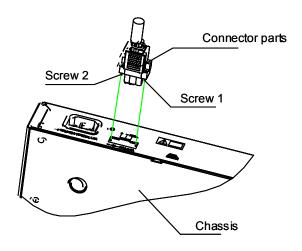


Figure 3-24 Fix the RPS DC power connector to the chassis

- 6) Insert the connector into the DC socket directly. Use the flathead screwdriver to fix the connector with screw 1 and screw 2 (delivered with the switch), as shown in Figure 3-24.
- 7) Check whether the PWR LED on the front panel of the switch is ON. If yes, the power is properly connected.

## Caution:

- Before powering on the switch, you should properly connect the grounding wire.
- The DC power cord should be less than 3 meters (9.8 ft.) long.

### 3.5.3 Connecting Grounding Wire

# Caution:

You should properly connect the switch grounding wire since it is crucial to the lightning protection and electromagnetic shield (EMS) of your switch.

The power input end of the switch is connected with a noise filter, whose central ground is directly connected to the chassis, forming the so-called chassis ground (commonly known as PGND). This chassis ground must be securely connected to the earth so that the faradism and leakage electricity can be safely released to the earth, enhancing the EMS capability of the switch.

#### Ground the switch as follows:

When a grounding strip is available at the installation site, attach one end of the yellow-green grounding wire of the switch to the grounding screw on the grounding strip and fasten the captive nut. (Note that the fire main and lightning rod of your building are not suitable for grounding the switch. The grounding wire of the switch should be connected to the construction engineering ground of the equipment room.)

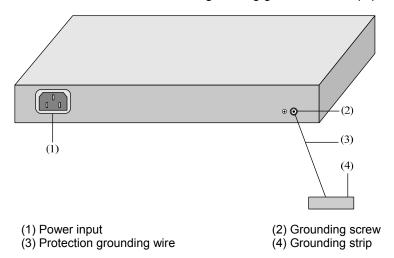
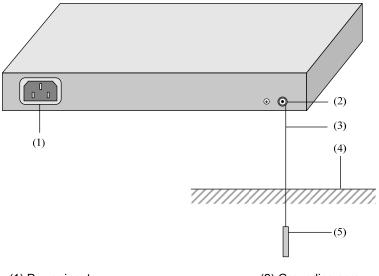


Figure 3-25 Ground the switch through a grounding strip

When there is no grounding strip but there is cement floor nearby where a grounding body is allowed to be buried, hammer an angle steel/steel pipe no shorter than 0.5 m (1.6 ft.) into the earth, with the yellow-green grounding wire of the switch welded onto the angle steel/steel pipe and the jointing point being processed against erosion.

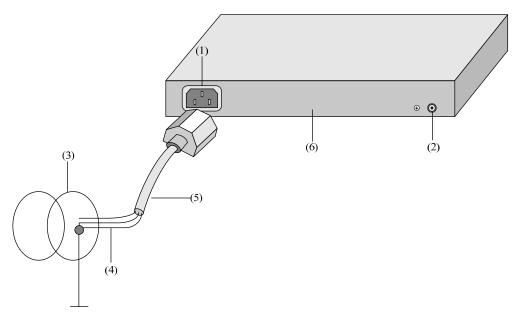


- (1) Power input
- (3) Protection grounding wire
- (5) Angle steel

- (2) Grounding screw
- (4) Earth

Figure 3-26 Ground the switch by burying the grounding body into the earth

For an AC-powered switch, if none of the above two conditions is available, ground it through the PE wire of the AC power supply. In this case, make sure this PE wire is well connected to the ground at the power distribution room or AC transformer.



(1) AC power socket

(2) Grounding screw

(3) Power transformer

- (4) PE wire
- (5) 3-wire cable for AC power input
- (6) Ethernet switch

Figure 3-27 Ground the switch through AC PE wire

For a DC-powered switch (–48 VDC), if none of the first two conditions is available, ground it through the return wire (RTN) of the DC power supply. In this case, make sure this RTN wire is well connected to the ground at the DC output of the DC power cabinet.

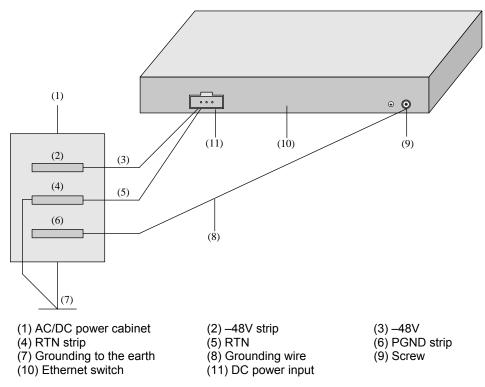


Figure 3-28 Ground the switch through the PGND of the power cabinet

## 3.6 Connecting Console Cable

#### 3.6.1 Console Cable

Console cable is an 8-core shielded cable. At one end of the cable is a crimped RJ45 connector to be connected to the Console port of the switch; at the other end of the cable is a DB-9 (female) connector to be connected to the 9-core (pin) serial port on the Console terminal. See Figure 3-29.

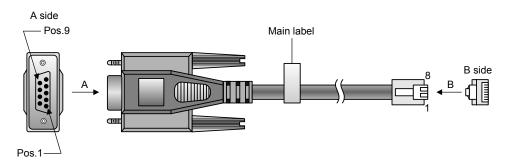


Figure 3-29 Console cable

Table 3-4 Console cable connector pinouts and mapping relation

RJ-45	Signal	Direction	DB-9
1	RTS	←	7
2	DTR	←	4
3	TXD	<b>←</b>	3
4	CD	$\rightarrow$	1
5	GND	_	5
6	RXD	$\rightarrow$	2
7	DSR	$\rightarrow$	6
8	CTS	$\rightarrow$	8

### 3.6.2 Connecting Console Cable

Follow these steps to connect a terminal device, a PC for example, to the switch:

Step 1: Connect the DB-9 female connector of the Console cable to the serial port of the PC or the terminal device used to configure the switch.

Step 2: Connect the RJ-45 connector of the Console cable to the Console port of the switch.



### ∠!\ Caution:

Identify the label of the port before connecting a connector.

#### Note:

If the switch has been powered on,

- First connect the DB-9 connector of the console cable to the PC before connecting the RJ45 connector to the switch.
- Disconnect the DB-9 connector of the console cable from the PC after disconnecting the RJ45 connector from the switch.

## 3.7 Installing and Removing Optional Interface Modules

#### 3.7.1 XFP Interface Module

#### I. Appearance and front panel

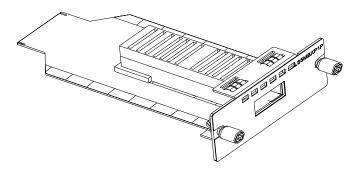


Figure 3-30 Appearance of an XFP interface module

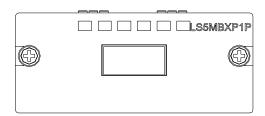


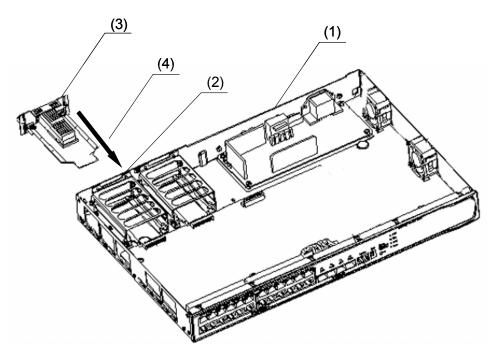
Figure 3-31 Front panel of an XFP interface module

#### II. Installation

Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded. Then take out the XFP interface module from the package.

Step 2: Loosen the mounting screws of the filler panel on the rear panel of the switch with a screwdriver and remove the filler panel.

Step 3: Hold the fastening screws on the front panel of the XFP interface module, and gently push the XFP interface module in along the slot guide rail until the XFP interface module is in close contact with the switch.



- (1): Switch
- (3): XFP interface module
- (2): Optional module slot
- (4): Push-in direction

Figure 3-32 Installing an XFP interface module

Step 4: Tighten the fastening screws with a screwdriver to fix the XFP interface module.

#### Mote:

- Keep the removed filler panel properly for future use.
- When tightening the fastening screws at both sides of the optional module with a screwdriver or an electric screwdriver, make sure that the torque is not bigger than 0.4N•m.

#### III. Removal

- Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded.
- Step 2: Loosen the fastening screws at both sides of the XFP interface module using a Phillips screwdriver.
- Step 3: Pull the XFP interface module towards you, until it completely comes out of the switch chassis.

# Caution:

When installing or removing an optional interface module, pay attention to the following points:

- Do not use too much force in the operation, and do not touch the surface-mounted components directly with your hands.
- After removing an optional module, if no new module is to be installed, install the filler panel as soon as possible to prevent dust and ensure the normal ventilation in the switch.

#### 3.7.2 Stack Module

#### I. Appearance and front panel

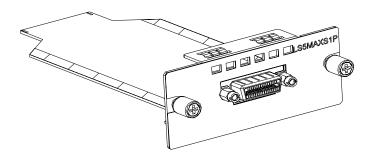


Figure 3-33 Appearance of a stack module

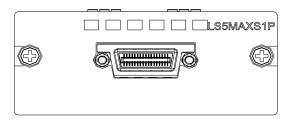


Figure 3-34 Front panel of a stack module

#### II. Installation and removal

A stack module is installed and removed in the same way as you install and remove an XFP interface module. Refer to section 3.7.1 II. "Installation".

### 3.7.3 XENPAK Optical Module

#### I. Appearance and front panel

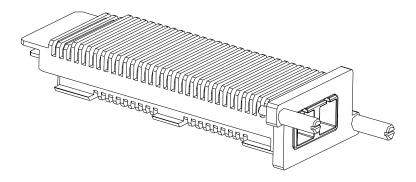


Figure 3-35 Appearance of an XENPAK optical module

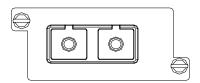


Figure 3-36 Front panel of an XENPAK optical module

#### II. Installation

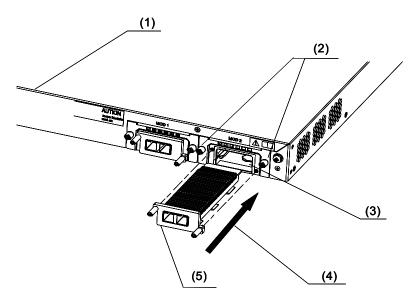
Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded. Then take out the XENPAK optical module from the package.

Step 2: Loosen the two mounting screws on the small cover plate in the middle on the filler panel with a screwdriver and remove the small cover plate.

#### ■ Note:

When installing an XENPAK optical module, you do not need to remove the whole filler panel. Just remove the small cover plate in the middle on the filler panel.

Step 3: Hold the fastening screws on the front panel of the XENPAK optical module, and gently push the XENPAK optical module in along the slot guide rail until the XENPAK optical module is in close contact with the switch.



- (1): Switch (2): Filler panels for optional module slots
- (3): Small cover plate (removed) in the middle on the filler panel
- (4): Push-in direction (5): XENPAK optical module

Figure 3-37 Installing an XENPAK optical module

Step 4: Tighten the fastening screws on the XENPAK optical module with a screwdriver to fix the XENPAK optical module on the filler panel.

#### ☐ Note:

- Keep the removed small cover plate properly for future use.
- When tightening the fastening screws at both sides of the optional module with a screwdriver or an electric screwdriver, make sure that the torque is not bigger than 0.4N•m.
- Hot swapping of XENPAK optical modules is supported.

#### III. Removal

- Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded.
- Step 2: Loosen the fastening screws at both sides of the XENPAK optical module using a flathead screwdriver.
- Step 3: Pull the XENPAK optical module towards you, until it completely comes out of the switch chassis.

## 3.8 Installing and Removing Dedicated Stack Cables

#### 3.8.1 Introduction

In a stack of the S5100-EI series switches, dedicated stack cables are needed to connect the 10GE stack ports of the switches.

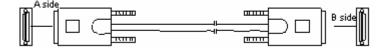


Figure 3-38 Schematic diagram of a dedicated stack cable

The dedicated stack cables for the S5100-EI series are available in three length specifications: 0.5 m (1.6 ft.), 1 m (3.3 ft.), and 3 m (9.8 ft.). You can choose the cables according to the specific needs.

#### 3.8.2 Installation

#### M Note:

Before installing a dedicated stack cable, you need to install 10GE stack cards.

Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded. Then take out the dedicated stack cable from the package.

Step 2: Insert the plugs of the dedicated stack cable horizontally into the 10GE stack ports of the switches, paying attention to the directions of the plugs.

Step 3: Tighten the fastening screws at both sides of the stack cable plugs using a flathead screwdriver or an electric screwdriver.

#### 3.8.3 Removal

Step 1: Put on an ESD-preventive wrist strap and verify the ESD-preventive wrist strap properly grounded.

Step 2: Loosen the fastening screws at both sides of the stack cable plugs using a flathead screwdriver or an electric screwdriver.

Step 3: Pull out horizontally the plugs of the dedicated stack cable from the 10GE stack ports of the switches.

## Caution:

- The dedicated stack cables for the S5100-El series are hot-swappable.
- When tightening the fastening screws at both sides of the stack cable plugs using a flathead screwdriver or an electric screwdriver, make sure that the torque is not bigger than 0.4N•m.
- When connecting a stack cable, make sure that the bending radius of cable is at least eight times of the cable diameter.

## 3.9 Verifying the Installation

After completing the installation, verify that:

- The correct power source is used.
- The ground wire is securely connected.
- Both of the console cable and power cord are correctly connected.
- All the interface cables are routed indoors. If there are cables outdoors, check that
  the socket strip with lightning protection and lightning arresters for network ports
  have been correctly connected.

# Chapter 4 Powering on the Switch for the First Time

## 4.1 Set up the Configuration Environment

Set up the configuration environment as shown in Figure 4-1:

 Connect a terminal, a PC in this example, to the console port on the switch with a console cable.

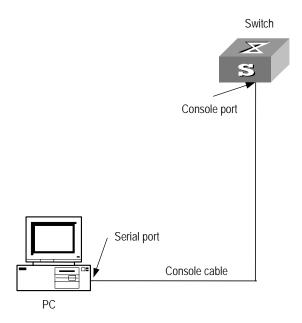


Figure 4-1 Network diagram for the first power-on of the switch

## 4.2 Connecting the Console Cable

Step 1: Plug the DB-9 female connector of the console cable to the serial port of the PC where the switch is to be configured.

Step 2: Connect the RJ-45 connector of the console cable to the console port of the switch.

## 4.3 Setting Terminal Parameters

Step 1: Start the PC and run the terminal emulation program such as the Terminal of Windows 3.1 or the HyperTerminal of Windows 95/98/NT/2000/XP.

Step 2: Set terminal parameters (take the HyperTerminal of Windows XP as an example).

Parameter requirements: Set "Bits per second" to 9600, "Data bits" to 8, "Parity" to "none", "Stop bits" to 1 and "Flow control" to "none". Select VT100 as terminal emulation. The specific procedure is as follows:

1) Select [Start/Programs/Accessories/Communications/HyperTerminal] to enter the



HyperTerminal window, where click the hypertrm icon to establish a new connection. The connection description interface appears, as shown below.



Figure 4-2 Connection description of HyperTerminal

2) Type in the name of the new connection in the connection description interface and click <OK>. The system pops up the following interface. Select the serial port to be used from [Connect using].



Figure 4-3 Setting the serial port used by the HyperTerminal connection

3) Click <OK> after selecting a serial port and the system pops up the following interface. On the interface, set "Bits per second" to 9600, "Data bits" to 8, "Parity" to "none", "Stop bits" to 1, and "Flow control" to "none".

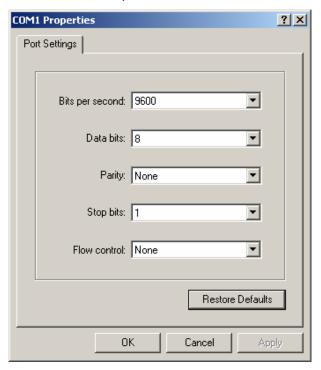


Figure 4-4 Setting serial port parameters

4) Click <OK> after setting the serial port parameters, and the system enters the following interface.

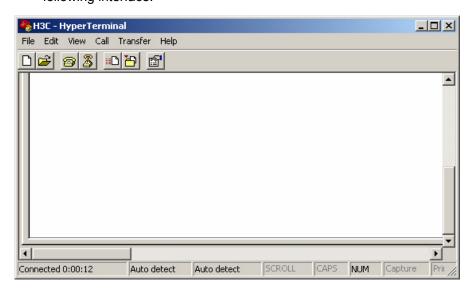


Figure 4-5 HyperTerminal window

Choose [Properties] in the HyperTerminal dialog box to enter the properties window. Click [Settings] to enter the following properties setting window, select VT100 as the terminal emulation, and then click <OK>.

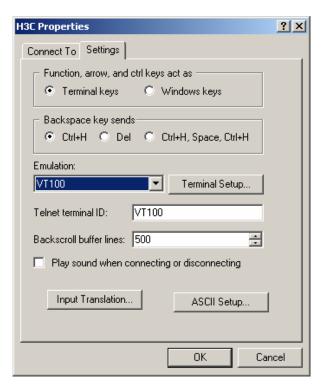


Figure 4-6 Setting terminal emulation in properties setting window

## 4.4 Booting the Switch

#### 4.4.1 Checking before Powering on the Switch

Before powering on the switch, verify that:

- The power cords are properly connected.
- The power supply voltage is consistent with that required by the switch.
- The console cable is properly connected; the terminal (which can be a PC) used for configuration has been started; and the configuration parameters have been set.

#### 4.4.2 Powering on the Switch

All the S5100 series Ethernet switches have the same BOOT ROM display style. This document uses the Boot ROM display of S5100-48P-El as an example:

Starting.....

Copyright(c) 2004-2007 Hangzhou H3C Technologies Co., Ltd.

Creation date : Apr 16 2007, 11:29:53

CPU Clock Speed : 200MHz
BUS Clock Speed : 33MHz
Memory Size : 64MB

Mac Address : 000fe2005100

```
Press Ctrl-B to enter Boot Menu... 0
```

The last line asks whether you want to enter the Boot Menu. The system waits two seconds for your response.

#### □ Note:

- The system has two startup modes: normal startup and fast startup. The normal startup mode takes a little longer time than the fast startup mode because of more self-test operations.
- By default, the system starts up in fast startup mode and the waiting time here is two seconds. if you set the startup mode to normal, this waiting time is five seconds. For the setting of the startup mode, refer to the next section.

If you press <Ctrl + B> within 2 seconds, the Boot Menu is displayed:

```
BOOT MENU
```

- 1. Download application file to flash
- 2. Select application file to boot
- 3. Display all files in flash
- 4. Delete file from flash
- 5. Modify bootrom password
- 6. Enter bootrom upgrade menu
- 7. Skip current configuration file
- 8. Set bootrom password recovery
- 9. Set switch startup mode

0. Reboot

Enter your choice(0-9):

• If you perform no operation or press a key other than <Ctrl + B> within two seconds, once the remaining waiting time becomes zero, the system begins to automatically start up and the following information is displayed:

Auto-bootii	.19
Decompress	Image
• • • • • • • • • • • • • • • • • • • •	
• • • • • • • • • • • • • • • • • • • •	OK!
Starting at	t 0x80100000

User interface aux0 is available.

Press ENTER to get started.

#### ■ Note:

The setting takes effect only for the first reboot if you choose 7. Skip current configuration file in the BOOT MENU.

#### 4.4.3 Changing the Startup Mode

By default, the system starts up in fast mode. If you want to change the startup mode to normal, press <Ctrl + B> within two seconds to enter the Boot Menu showed below:

BOOT MENU

- 1. Download application file to flash
- 2. Select application file to boot  $\ \ \,$
- 3. Display all files in flash
- 4. Delete file from flash
- 5. Modify bootrom password
- 6. Enter bootrom upgrade menu
- 7. Skip current configuration file
- 8. Set bootrom password recovery
- 9. Set switch startup mode

0. Reboot

Enter your choice(0-9):

#### Enter 9, and the system prompts you to change the startup mode:

The current mode is fast startup mode! Are you sure to change it to full startup mode? Yes or No(Y/N)

#### Enter Y. The system displays the following information:

```
Setting startup mode...done!
BOOT MENU
```

- 1. Download application file to flash
- 2. Select application file to boot
- 3. Display all files in flash
- 4. Delete file from flash
- 5. Modify bootrom password
- 6. Enter bootrom upgrade menu
- 7. Skip current configuration file
- 8. Set bootrom password recovery
- 9. Set switch startup mode
- 0. Reboot

Enter your choice(0-9):

#### Enter 0. The system reboots in normal mode and displays the following information:

Starting.....

Copyright(c) 2004-2007 Hangzhou H3C Technologies Co., Ltd.

Creation date : Apr 16 2007, 11:29:53

CPU Clock Speed : 200MHz
BUS Clock Speed : 33MHz
Memory Size : 64MB

Mac Address : 000fe2005100

Press Ctrl-B to enter Boot Menu... 5

In normal startup mode, the waiting time here is five seconds. If you press <Ctrl + B> within five seconds, the Boot Menu is displayed: If you perform no operation or press a

key other than <Ctrl + B> within five seconds, the system begins to automatically start up and the following information is displayed:

Auto-bootin	ng
Decompress	Image
• • • • • • • • • • • • • • • • • • • •	
OK!	
Starting at	: 0x80100000
	Initialize LS51LTSGOK!
	SDRAM fast selftestOK!
	Flash fast selftestOK!
	CPLD selftestOK!
	Switch chip selftestOK!
	Port 1 has no module
	Port 2 has no module
	Port 3 has no module
	Port 4 has no module
	PHY selftestOK!
	Please check port ledsFINISHED!
User interf	face aux0 is available.

Press ENTER to get started.

The appearance of "Press ENTER to get started" indicates that the automatic startup of the switch is complete.

Press <Enter>. The following prompt is displayed:

<H3C>

You can configure the switch now.

#### □ Note:

The H3C Series Switches provides abundant command views. For detailed descriptions about the configuration commands and CLI, refer to H3C S5100 Series Ethernet Switches Operation Manual and H3C S5100 Series Ethernet Switches Command Manual.

## Chapter 5 Boot ROM and Host Software Loading

Traditionally, the loading of switch software is accomplished through the serial port. This approach is slow, inconvenient, and cannot be used for remote real-time loading. To solve these problems, the TFTP and FTP modules are introduced into the switch. With these modules, the software and files can be loaded through Ethernet port conveniently.

This chapter introduces how to load The Boot ROM and host software into a switch locally and how to do this remotely.

## 5.1 Introduction to Loading Modes

You can load the software locally by using:

- XModem through console port
- TFTP through Ethernet port
- FTP through Ethernet port

You can load the software remotely by using:

- FTP
- TFTP

#### □ Note:

The Boot ROM software version should match the host software version when you load the Boot ROM and host software.

## 5.2 Local Software Loading

If your terminal is directly connected to the switch, you can load The Boot ROM and host software locally.

Before loading the software, make sure that your terminal is correctly connected to the switch to insure successful software loading.

#### □ Note:

The loading process of the Boot ROM software is the same as that of the host software, except that during the Boot ROM loading process, you should enter the different digit after entering the Boot Menu and the system gives somewhat different prompts. The following text mainly describes the Boot ROM loading process.

#### 5.2.1 Boot Menu

Starting.....

Copyright(c) 2004-2007 Hangzhou H3C Technologies Co., Ltd.

Creation date : Apr 16 2007, 11:29:53

CPU type : BCM5836

CPU Clock Speed : 200MHz

BUS Clock Speed : 33MHz

Memory Size : 64MB

Mac Address : 000fe2005100

```
Press Ctrl-B to enter Boot Menu... 5
```

#### Press <Ctrl + B>. The system displays:

Password :

#### ■ Note:

To enter the Boot Menu, you should press <Ctrl+B> within five seconds after the information "Press Ctrl-B to enter Boot Menu..." appears. Otherwise, the system starts to decompress the program; and if you want to enter the Boot Menu at this time, you will have to restart the switch.

Input the correct Boot ROM password (by default, no password is set on the switch). The system enters the Boot Menu:

BOOT MENU

- 1. Download application file to flash
- 2. Select application file to boot
- 3. Display all files in flash
- 4. Delete file from flash
- 5. Modify bootrom password
- 6. Enter bootrom upgrade menu
- 7. Skip current configuration file
- 8. Set bootrom password recovery
- 9. Set switch startup mode
- 0. Reboot

Enter your choice(0-9):

#### 5.2.2 Loading Software Using XModem Through Console Port

#### I. Introduction to XModem

XModem is a file transfer protocol that is widely used due to its simplicity and good performance. XModem transfers files through console port. It supports two types of data packets (128 bytes and 1 KB), two check methods (checksum and CRC), and error packet retransmission mechanism (generally the maximum number of retransmission attempts is ten).

The XModem transmission procedure is completed by the cooperation of a receiving program and a sending program. The receiving program sends a negotiation packet to negotiate a packet check method. After the negotiation, the sending program starts to transmit data packets. When receiving a complete packet, the receiving program checks the packet using the agreed method. If the check succeeds, the receiving program sends an acknowledgement packet and the sending program proceeds to send another packet; otherwise, the receiving program sends a negative acknowledgement packet and the sending program retransmits the packet.

#### **II. Loading Boot ROM software**

Step 1: At the prompt "Enter your choice(0-9):" select 6 in the Boot Menu and then press <Enter> to enter the Boot ROM update menu shown below:

Bootrom update menu:

- 1. Set TFTP protocol parameter
- 2. Set FTP protocol parameter
- 3. Set XMODEM protocol parameter
- 0. Return to boot menu

Enter your choice(0-3):

Step 2: Enter 3 in the above menu to load the Boot ROM software using XModem. The system displays the following download baud rate setting menu:

Please select your download baudrate:

- 1.\* 9600
- 2. 19200
- 3. 38400
- 4. 57600
- 5. 115200
- 0. Return

Enter your choice (0-5):

Step 3: Choose an appropriate download baud rate. For example, if you enter 5, the 115200 bps rate is chosen, and the system displays the following information:

Download baudrate is 115200 bps

Please change the terminal's baudrate to 115200 bps and select XMODEM protocol Press enter key when ready

Now, press <Enter>.

#### ■ Note:

If you have chosen 9600 bps, you do not need to modify the HyperTerminal's baud rate, and therefore you can skip Step 4 and 5 below and proceed to Step 6 directly. In this case, the system will not display the above information.

Step 4: Choose [File/Properties] in HyperTerminal, click <Configuration> in the popup dialog box, select the baud rate of 115200 bps in the appeared console port configuration dialog box.

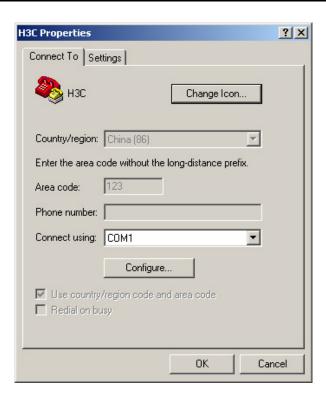


Figure 5-1 Properties dialog box

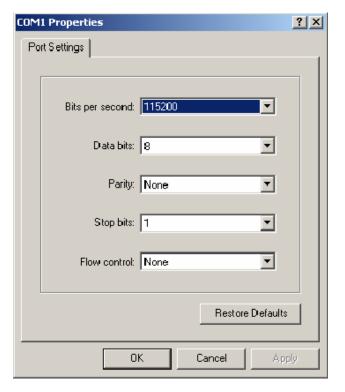


Figure 5-2 Console port configuration dialog box

Step 5: After setting the baud rate, you need to disconnect and the reconnect HyperTerminal so that the baud rate setting takes effect. Click the <Disconnect> button

to disconnect the HyperTerminal from the switch and then click the <Call> button to reconnect the HyperTerminal to the switch.

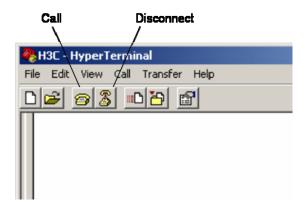


Figure 5-3 Call and disconnect buttons

#### A Note:

The new baud rate takes effect only after you disconnect and reconnect the terminal emulation program.

Step 6: Press <Enter> to start downloading the program. The system displays the following information:

Now please start transfer file with XMODEM protocol. If you want to exit, Press <Ctrl+X>.

Loading ...CCCCCCCCCC

Step 7: Choose [Transfer/Send File] in the HyperTerminal's window, and in the following popup dialog box click <Browse>, select the software you need to download, and set the protocol to XModem.

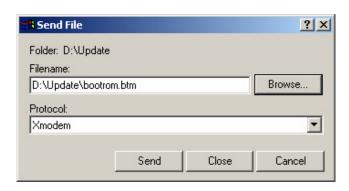


Figure 5-4 Send file dialog box

Step 8: Click <Send>. The system displays the following page.

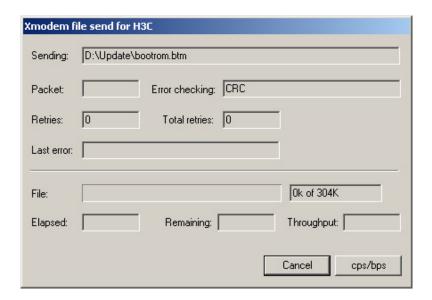


Figure 5-5 Send file page

Step 9: After the download completes, the system displays the following information:

Loading ... CCCCCCCCC done!

#### Note:

You do not need to reset the HyperTerminal's baud rate and can skip the last step if you have chosen 9600 bps. In this case, the system display the prompt "BootROM is updating now......done!" instead of the prompt "Your baudrate should be set to 9600 bps again! Press enter key when ready".

Step 10: Reset HyperTerminal's baud rate to 9600 bps (refer to Step 4 and 5). Then, press any key as prompted. The system will display the following information when it completes the loading.

Bootrom updating.....done!

#### III. Loading host software

Step 1: Select 1 in Boot Menu. The system displays the following information:

- 1. Set TFTP protocol parameter  $\,$
- 2. Set FTP protocol parameter
- 3. Set XMODEM protocol parameter
- $\ensuremath{\text{0.}}$  Return to boot menu

Enter your choice(0-3):3

To load the host software through XModem, select 3.

The subsequent steps are the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

#### 5.2.3 Loading Software Using TFTP through Ethernet Port

#### I. Introduction to TFTP

Trivial File Transfer Protocol (TFTP), a protocol in TCP/IP protocol suite, is used for trivial file transfer between client and server. It uses UDP to provide unreliable data stream transfer service.

#### II. Loading Boot ROM software

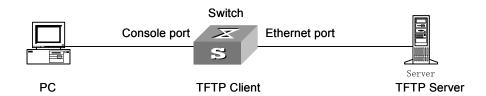


Figure 5-6 Local loading using TFTP

Step 1: As shown in Figure 5-6, connect the switch through an Ethernet port to the TFTP server, and connect the switch through the console port to the configuration PC.

#### ■ Note:

You can use one PC as both configuration device and TFTP server.

Step 2: Run the TFTP server program on the TFTP server, and specify the path of the program to be loaded.



#### Caution:

TFTP server program is not provided with the H3C Series Switches.

Step 3: Run the terminal emulation program on the configuration PC. Start the switch. Then enter the Boot Menu. At the prompt "Enter your choice(0-9):" select 6 in the Boot Menu and then press <Enter> to enter the Boot ROM update menu shown below:

Bootrom update menu:

1. Set TFTP protocol parameter

- Set FTP protocol parameter
   Set XMODEM protocol parameter
   Return to boot menu
   Enter your choice(0-3):
- Step 4: Select 1 to download the Boot ROM software using TFTP. Then set the following TFTP-related parameters as required:

Load File name :S5100.btm

Switch IP address :1.1.1.2

Server IP address :1.1.1.1

#### Step 5: Press <Enter>. The system displays the following information:

Are you sure to update your bootrom?Yes or No(Y/N)

Step 6: Enter Y to start file downloading or N to return to the Boot ROM update menu. If you enter Y, the system begins to download and update the Boot ROM software. Upon completion, the system displays the following information:

```
Loading.......done
Bootrom updating.....done!
```

#### III. Loading host software

Step 1: Select 1 in Boot Menu. The system displays the following information:

```
    Set TFTP protocol parameter
    Set FTP protocol parameter
    Set XMODEM protocol parameter
    Return to boot menu
    Enter your choice(0-3):1
```

To load the host software through TFTP, select 1.

The subsequent steps are the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

#### 5.2.4 Loading Software Using FTP Through Ethernet Port

#### I. Introduction to FTP

File Transfer Protocol (FTP) is an application-layer protocol in the TCP/IP protocol suite. It is used for transferring files between server and client, and is widely used in IP networks.

You can use FTP to load software onto the switch through an Ethernet port. In this case, the switch can act as an FTP server or an FTP client. In the following example, the switch acts as an FTP client.

#### II. Loading Boot ROM software

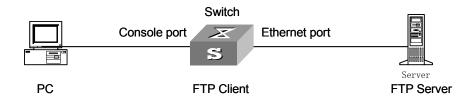


Figure 5-7 Local loading using FTP

Step 1: As shown in Figure 5-7, connect the switch through an Ethernet port to the FTP server, and connect the switch through the console port to the configuration PC.

#### ■ Note:

You can use one PC as both configuration device and FTP server.

Step 2: Run the FTP server program on the FTP server, configure an FTP user name and password, and specify the path of the program to be downloaded.

Step 3: Run the terminal emulation program on the configuration PC. Start the switch. Then enter the Boot Menu.

At the prompt "Enter your choice(0-9):" select 6 in the Boot Menu, and then press <Enter> to enter the Boot ROM update menu shown below:

Bootrom update menu:

- 1. Set TFTP protocol parameter
- 2. Set FTP protocol parameter
- 3. Set XMODEM protocol parameter
- 0. Return to boot menu

Enter your choice(0-3):

Step 4: Enter 2 in the above menu to download the Boot ROM software using FTP. Then set the following FTP-related parameters as required:

Load File name :S5100.btm

Switch IP address :10.1.1.2

Server IP address : 10.1.1.1

FTP User Name :5100

FTP User Password :abc

Step 5: Press <Enter>. The system displays the following information:

Are you sure to update your bootrom?Yes or No(Y/N)

Step 6: Enter Y to start file downloading or N to return to the Boot ROM update menu. If you enter Y, the system begins to download and update the program. Upon completion, the system displays the following information:

```
Loading......done
Bootrom updating.....done!
```

#### III. Loading host software

Step 1: Select 1 in Boot Menu. The system displays the following information:

```
1. Set TFTP protocol parameter
```

- 2. Set FTP protocol parameter
- 3. Set XMODEM protocol parameter
- 0. Return to boot menu
  Enter your choice(0-3):2

To load the host software through FTP, select 2.

The subsequent steps are the same as those for loading the Boot ROM software, except that the system gives the prompt for host software loading instead of Boot ROM loading.

## 5.3 Remote Software Loading

If your terminal is indirectly connected to the switch through Internet, you can telnet to the switch, and use FTP or TFTP to load The Boot ROM and host software remotely.

#### 5.3.1 Remote Loading Using FTP

As shown in Figure 5-8, a PC is used as both configuration device and FTP server. You can telnet to the switch, and then execute the FTP commands to download the host program s5100.bin and the Boot ROM program s5100.btm from the remote FTP server (with IP address 10.1.1.1) to the switch.

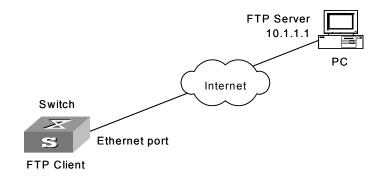


Figure 5-8 Remote loading using FTP

Step 1: Download the software to the switch using FTP commands.

```
<H3C> ftp 10.1.1.1
Trying ...
Press CTRL+K to abort
Connected.
220 WFTPD 2.0 service (by Texas Imperial Software) ready for new user
User(none):abc
331 Give me your password, please
Password:
230 Logged in successfully
[ftp] get s5100.bin
[ftp] get s5100.btm
[ftp] bye
```

#### Step 2: Update the Boot ROM program on the switch.

```
<H3C> boot bootrom s5100.btm
please wait ...
Bootrom is updated!
```

#### Step 3: Update the host software on the switch.

```
<H3C> boot boot-loader s5100.bin

<H3C> display boot-loader

Unit 1:

The current boot app is: s5100.bin

The main boot app is: s5100.bin

The backup boot app is:
```

#### Step 4: Restart the switch.

```
<H3C> reboot
```

#### A Note:

Before restarting the switch, make sure other configurations are all saved to avoid the loss of configuration information.

After the steps above, the Boot ROM and host software loading is completed.

Pay attention to the following points:

- Host software loading takes effect only after you restart the switch with the reboot command.
- If the space of the flash memory is not enough, you can delete the useless files in the flash memory before software downloading.
- Power interruption is not allowed during software loading.

## 5.3.2 Remote Loading Using TFTP

The remote loading by using TFTP is similar to the remote loading by using FTP. The only difference is that it is TFTP that you use when loading software to the switch. In this case, the switch can only be used as a TFTP client.

## **Chapter 6 Maintenance and Troubleshooting**

## 6.1 Software Loading Failure

If software loading fails, the system keeps running in original version. In this case, check if the physical ports are properly connected:

- If the ports are not properly connected, reconnect them correctly and restart the loading procedure.
- If the ports are properly connected, check the loading procedure information displayed on the HyperTerminal for input errors. If there is any input error, restart the loading procedure with correct input. For example, when using XModem, verify that you have reset the baud rate of the HyperTerminal to 9600 bps after loading the software with a baud rate other than 9600 bps; when using TFTP, verify that you have specified the correct server and switch IP addresses, the correct name of the software to be loaded and the correct working path of TFTP server; when using FTP, verify that you have specified the correct server and switch IP addresses, the correct name of the software to be loaded and the correct username and password.

If software loading fails but there are neither physical connection problems nor input errors, please contact your agent for help.

## 6.2 Missing Password

#### 6.2.1 Missing user password

If you have forgotten your user password, you can enter the Boot Menu:

BOOT MENU

- 1. Download application file to flash
- 2. Select application file to boot
- 3. Display all files in flash
- 4. Delete file from flash
- 5. Modify bootrom password
- 6. Enter bootrom upgrade menu
- 7. Skip current configuration file
- 8. Set bootrom password recovery
- 9. Set switch startup mode
- 0. Reboot

Enter your choice(0-9):

Select 7, and then restart the switch. After the switch is restarted, the configuration file will be skipped.

#### 6.2.2 Missing Boot ROM Password

Please contact your switch dealer.

### **6.3 Power Supply Failure**

You can check whether the power system of the switch fails by viewing the PWR LED on the front panel. When the power supply system functions normally, the PWR LED should stay on. Otherwise, please check whether

- The switch power cord is properly connected.
- The power input to the switch matches the requirement as labeled on the switch.

## 6.4 Configuration System Failure

After the switch is powered on and the system is normal, the booting information will be displayed on the configuration terminal. If the configuration system has any faults, there will not be any screen display at the configuration terminal or the displayed characters will be totally illegible.

#### I. Troubleshooting when there is no terminal display

If there is no output information after the configuration is powered on, please check whether:

- The power supply is normal
- The console cable is properly connected

If no problems are found after the above-mentioned items have been checked, the cause may lie in the console cable or the settings of the terminal (such as hyper terminal) parameters. Please perform the corresponding check.

#### II. Troubleshooting when the terminal display is illegible

If there is illegible display at the configuration terminal, the cause might lie in the parameter setting error at the terminal (such as HyperTerminal). Verify the following terminal parameter (such as hyper terminal) settings:

• Bits per second: 9600

Data bits: 8Parity: noneStop bits: 1

Flow control: none

Terminal emulation: VT100

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## **Appendix A Lightning Protection of the Switch**

## A.1 Installation of Lightning Arrester for AC Power (Socket Strip with Lightning Protection)

## Caution:

Lightning arrester will not be shipped with the switch. You should purchase it by yourself if needed.

If an outdoor AC power cord should be directly led to the switch, please serially connect the lightning arrester for AC power (Socket Strip with Lightning Protection) before you plug AC power cord into the switch, thus to prevent the possible damage to the switch due to lightning strike. You can use cable clips and screws to fasten the lightning arrester for AC power on the cabinet, workbench or the wall of equipment room.

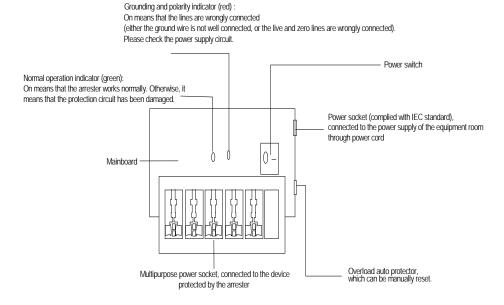


Figure A-1 Diagram of lightning arrester

## Caution:

- Make sure that the arrester is well grounded before using the lightning arrester for power.
- After inserting AC power cord plug of switch into the socket of lightning arrester, if the green LED is on and the red LED does not alarm, it means that the lightning arrester of power is running and the function of lightning protection has taken effect.
- Pay adequate attention if the red LED is on. You should correctly locate the problem, whether it is caused because the ground wire of the arrester is not well grounded or because the live and zero wires are connected in reverse direction. You may check that in the following way. When the red LED is on, use a multimeter to examine polarity at the power socket of the arrester. If it is same to that of the power socket in the equipment room, it means that arrester is not well grounded. If it is adverse to that of the power socket in the equipment room, it means that the power socket of the arrester is set to the reverse polarity. In this case, you should open the power socket of arrester to correct polarity. After that, if the red LED still alarms, it means that the arrester is not well grounded yet.

## A.2 Installation of Lightning Arrester for Network Port

#### ☐ Note:

Lightning arrester for network port is specially designed for the Ethernet port of 10/100M electrical interface (RJ-45 connector is adopted in this case).



#### Caution:

Lightning arrester for network port will not be provided along with the switch, and you should purchase it by yourself if needed.

If an outdoor network cable should be led  $_{\perp}$  to the switch, please serially connect the lightning arrester for network port before you plug this cable into the interface on the switch, in case of the possibility that the switch may be damaged due to lightning strike.

#### I. Required tools

Phillips screwdriver or Flat-blade screwdriver

- Multimeter
- Tilted wire cutter

#### II. Installation procedure

Step 1: Tear the protection paper at one side of the double faced adhesive tape apart from the tape, and stick the tape on the surface of the arrester. Tear the protection paper at another side apart from the tape, and stick the arrester onto the chassis of the switch. The arrester should be attached on the chassis as close to the grounding screw as possible.

Step 2: According to the distance to the grounding screw of the switch, cut the ground wire of the arrester, and securely tightening its ground wire to the grounding screw of the switch.

Step 3: Use the multimeter to measure whether the ground wire of the arrester contacts well with the grounding screw of chassis.

Step 4: According to the instruction of arrester for network port, connect the arrester with switch by the cables (be carefully with the cable direction. Outdoor network cable should be inserted into the arrester's IN end, and the cable connected to the switch should be inserted into the arrester's OUT end). When you do that, observe whether the arrester indicators normally display.

#### Mote:

The instruction of lightning arrester for network port contains the technical specifications, installation and maintenance guide of the arrester. Please carefully read it before installing the arrester.

Step 5: Use the nylon ties to bundle the cables neatly.

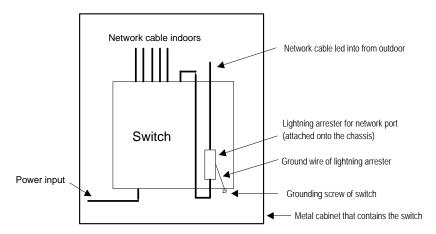


Figure A-2 Installation diagram of lightning arrester for network port

#### III. Installation precautions

Fully consider the following items in the installation process, otherwise, the performance of the lightning arrester for network port will be affected:

- Lightning arrester for network port is installed in reverse direction. In practice, the "IN" end should be connected to the outdoor network cable and the "OUT" end to the network port on the switch.
- Lightning arrester for the network port is not well grounded. The ground wire for the arrester should be as short as possible, so to ensure its good contact with the grounding screw of the switch. After the connection, use the multimeter to confirm that.